# A COMPARATIVE STUDY ON EMOTIONAL INTELLIGENCE, ANXIETY LEVEL AND ANTHROPOMETRIC MEASUREMENT AMONG KARNATAKA AND TAMILNADU STATE UNIVERSITY MEN VOLLEYBALL PLAYERS

***Synopsis submitted to Mangalore University for the Award of Degree of Doctor of Philosophy in Physical Education***


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# CHAPTER I

# INTRODUCTION

## 1.1 Preamble

The role of sports in society is of immense importance. Initially, games were more inclined towards the local and informal–with simple rules. With the advancement in civilization, the formation of sports associations occurred and matches between them began. Progress in transportation led to the origin of regional, national and international competitions. As sports gained importance in the modern world, it developed into a significant aspect of human life. It not only remained as a means of physical fitness and entertainment but developed into an integral part of economic and socio-political life. In the olden days, sports were just seen as entertainment. But today, because of modern lifestyle, sports assumed an integral part in retaining one's physical and mental health. Fitness has become a buzzword as it is often considered a yardstick of quality. The most frequently employed varieties of fitness are physical fitness, psychological fitness, social fitness and emotional fitness (Sandeep U, 2016). Of the many forms of fitness, physical fitness assumes paramount importance since it is the cornerstone of the magnificent human structure called "personality".

## Historical Background of Volleyball

Volleyball is a new game that is pre-eminently fitted for the gymnasium or the exercise hall but may also be played out of doors. Each team must consist of 12 players (Andor Gyulai, 1897). The object of the game is to move a ball from one side of a high net to the other while maintaining motion, giving it characteristics of both handball and tennis. A player on one team serves the ball over the net into the field or court of the other team to initiate play. The opponents then exchange the ball back and forth until one side is unable to do so or the ball touches the ground, all while preventing the ball from touching the ground. Depending on the side being taken into account, this counts as a "score" for one side or a "server out" for the opposing side.

## Impact of Psychology on Competitive Sports

To perform at their best, athletes can greatly benefit from sports psychology, the scientific study of individuals and their behaviours in sporting circumstances. The practical application of the recommendations based on the observations leads to modifications in the sportsmen's mentality and approach. Sports psychology has long been recognised for its significance, yet many coaches and athletes pay too little attention to how it might improve their performance (Hanson, 2021). These essential physical components of sport are made even more helpful when coupled with an efficient mental training regimen.

## Role of Psychological Factors in the Competitive Sports

### Emotional intelligence

Emotions may be just as crucial to sports success as any other factor, including physical, psychological, social, and spiritual aspects. The present study deems it significant to analyse correlations between Emotional Intelligence capacities and their direct effect on self-regulation and mindset given the relative paucity of research studying Emotions or Emotional Intelligence in sports performance.

### Anxiety

Anxiety is a physiological and psychological state characterized by cognitive, Somatic, Emotional, and Behavioural components. These components combine to create an unpleasant feeling that is typically associated with uneasiness, fear, or worry. Anxiety is a generalized mood state that occurs without an identifiable triggering stimulus. Anxiety is as common in sportspersons as to call it their companion. Though Anxiety of a minimal level is quite common, anxiety of an acute degree is detrimental to their performance. Sports psychologists call these states of Anxiety pre-competitive states Anxiety.

### Anthropometric Measurements

The systematic collection and measurements of the human body play a significant role. The measurement of human beings in this term is synonymous with

physical Anthropology and is an integral part of biometrics. The two types of Anthropometric measurements gathered are those which are taken on the living and those taken on the skeleton. Those favoured most are the head length and breadth, auricle head height, facial height and breath, nasal height and width, height sitting and bodily proportions, from which various indices are derived. The purpose of an Anthropometric study will determine the measurement required beyond Height and Weight –Body lengths and diameters for studies of race, growth and skin folds, for nutrition and body composition. Stature generally correlates with body and limb lengths, and weight with body breaths, depths, girths and skinfold.

## 1.2 Statement of the problem

Apart from the Physical aspect, Psychological factors are said to have an effect on the outcome of a player's performance. In order to comprehend the influence of these factors, the purpose of this study is to compare the levels of two Psychological factors- Emotional Intelligence and Anxiety, in addition to selected Anthropometric variables among the South-Zone Inter-University Volleyball players of Karnataka and Tamilnadu states.

## 1.3 Hypotheses of the study

$H_1$: It has been hypothesized that there is a **Significant** difference in the Emotional Intelligence between Volleyball players of Karnataka and Tamilnadu state Universities.

$H_2$: It has been hypothesized that there is a **Significant** difference in the Anxiety level between Karnataka and Tamilnadu University players.

$H_3$: It has been hypothesized that there is a **Significant** difference between Volleyball players of Karnataka and Tamilnadu state Universities in the aspects of selected Anthropometrical measurement.

$H_4$: It has been hypothesized that there is a **Significant** correlation between Emotional Intelligence and Anxiety level between Volleyball players of Karnataka and Tamilnadu state Universities.

$H_5$: It has been hypothesized that the level of Anxiety has a **Significant** impact on player performance.

$H_6$: It has been hypothesized that the level Emotional Intelligence has a **Significant** impact on player performance.

## 1.4 Objectives of the study

i. To find out the difference in the level of Emotional Intelligence between Karnataka and Tamilnadu State Inter-University Volleyball men players. The study also intends to examine its influence on their performance in the South-Zone Inter-University Volleyball tournament.
ii. To find out the difference in the level of Anxiety between Karnataka and Tamilnadu State University Volleyball players and its influence on performance.
iii. To find out the differences in Anthropometric measurement of Volleyball players in the Universities of Karnataka as compared with Volleyball players in the Universities of Tamilnadu participating in the South-Zone Inter-University Volleyball tournament.

## 1.5 Significance of the study

This study will help in comprehending the relationship between Emotional Intelligence, Anxiety and Anthropometric measurements with respect to the player performance of Karnataka and Tamilnadu Volleyball players. Any evidence suggesting the existence of a relationship will help in creating awareness about the impact of psychological factors on performance. Depending on this, measures can be taken to educate players on improving it.

## 1.6 Delimitations of the study

1. The study was delimited to Men Volleyball players who represented for the respective University in the South-Zone Inter-University Volleyball tournament in the year 2018-19.
2. The study was delimited to the standardized questionnaires of Emotional Intelligence (SEIT, Psychoscan, India) and Anxiety level (SCAT Rainer Martens, 1990) for the administration of the subjects.

3. The study was further delimited to pre-competitive duration to assess the level of Emotional Intelligence and Anxiety of Men Volleyball players of Karnataka and Tamilnadu Universities.
4. The study was delimited to the standardized equipment for the selected Anthropometric measurements of the Volleyball players of Karnataka and Tamilnadu State Universities.
5. The study was delimited to the age group of 18 to 25 years of Men Volleyball players of respective Universities in Karnataka and Tamilnadu States.

## 1.7 Limitations of the study

1. The response obtained from the subjects through the standardized questionnaire was treated as correct and genuine, which is considered the limitation of this study.
2. The available manual instruments for taking the Anthropometric measurements were considered as a limitation of this study.
3. The player's individual representation was not considered in this study as the limitation.
4. The player's Education, Family background and Food habits were not considered in this study was also a limitation.
5. Knowledge of understanding the questionnaire by the subject was the limitation of this study. The response given by the subject was considered as final data.
6. Different regions from the State were not considered in this study was one of the limitations.
7. Anthropometric measurements were taken by Scholars and knowledgeable assistance was one of the limitations of the study.
8. Coaching, Training and Infrastructure facility were not considered in this study. It was one of the major limitations.

# CHAPTER II

## REVIEW OF RELATED LITERATURE

The review of related literature is instrumental in the formation of a hypothesis and deductive reasoning for the problem. A study of relevant literature is an essential step to get a full picture of what was done with regard to the problem under study. Such a review brings about a deep and clear perspective of the overall research work. The literature in any field forms the foundation, upon which all future work will be built. Nowadays, educational programs of any type are characterized by reforms and innovative ideas. It seems to be necessary to formulate such a review of various scholar's work. We can bring up deep insight and clear perspective of the overall areas in such reviews. Such collected reviews have been presented in logical order, in order to importance and in sequence of merit.

**Kajbafnezhad, Hadi (2011)**, conducted the study on "Difference between team and individual sports with respect to psychological skills, overall emotional intelligence and athletic success motivation in Shiraz city athletes". This research was to compare the psychological skills, emotional intelligence and athletic success motivation. The research sample consisted of 400 male athletes. The finding (MANOVA) showed that there was significant difference between the two groups (individual and team sports) in terms of psychological skills and motivation of athletic success but there wasn't a significant difference between the two groups (individual and team sports) with respect to overall emotional intelligence.

A study was conducted by **Navneethan** and **Soundara Rajan (2010)** on the "Effect of progressive muscle relaxation training on competitive anxiety of male inter-collegiate Volleyball players". This study was mainly concerned with Volleyball players who participated in the high-level competition. This study investigated the effect of psychological skill training techniques such as progressive muscle relaxation on competitive anxiety. The results of this comparative study concluded that players belonging to progressive relaxation training performed better in cognitive anxiety, somatic anxiety and self-confidence as compared to control group.

**Jaric *et.al.*, (2001)** conducted a study on "Anthropometric, strength, power and flexibility variables in elite male athletes: basketball, handball, soccer and Volleyball players". Anthropometric, strength, power and flexibility measures were taken from the elite male sport games players for this study. The later result was predominantly based on the tested anthropometric measures suggesting that in some athletes' body size is negatively related to movement performance. This study concluded that the applied tests tend to distinguish among the tested athletes, while a more valid selection of the applied tests and the interpretation of their results require further studies.

# CHAPTER III

# METHODOLOGY

This chapter comprises of the materials and procedures utilized to derive significant outcomes regarding the influence of Emotional Intelligence, level of Anxiety in the Pre-Competitive phase and Anthropometric measurements of the players on their performance during the game. It mainly consists of three major variables of this study; assessment of Emotional Intelligence, level of Anxiety and Anthropometric measurements. The researcher mainly focused on the Survey method, information regarding the instrument used, the procedure for the collection of data and analysis of the collected data in the research survey.

## 3.1 Collection of Data

This study depicts the comparison between the Volleyball players of the Karnataka and Tamilnadu Universities respectively. For this study, the teams of both, the Karnataka and Tamilnadu State Universities that participated in the South-Zone Inter-University Volleyball-Men Tournament held at SRM Institute of Science and Technology, Chennai, Tamilnadu for the year 2018-19, were taken into consideration. A total of 384 Men Volleyball players in the age group ranging from 18-25 years were surveyed. Sixteen teams from both States consisting of a total of 192 players in each State were taken into consideration for this study.

## 3.2 Instrument for Data Collection

The instrument used for the collection of data in this study was standardized questionnaires designed in order to acquire the required information pertaining to Emotional Intelligence (SEIT, Psychoscan, India) as well as Anxiety (SCAT Rainer Martens, 1990). For Anthropometric Measurements, a toolkit (Rosscraft® Centurion Kit) developed exclusively to evaluate the Anthropometric data was used. The data were collected from the Volleyball players of both Karnataka and Tamilnadu State University in the pre-competition

### 3.3 Procedure for Data Collection

**i. Assessment of Emotional Intelligence**

To measure the degree of the advancement of Emotional Intelligence among the players, standardized questionnaire of Sports Emotional Intelligence Test (SEIT) authored by **Agashe, C. D** and **Helode, R. D** (Psychoscan, India) was distributed among the Volleyball players of respective Universities of Karnataka and Tamilandu before commencement of the match. The questionnaire consists of 15 questions with five possible options. The scoring norms of this questionnaire are as follows;

a) A score of less than 181 implies low level of Emotional Intelligence.
b) A score of ranging between 181 to 225 implies moderate level of Emotional Intelligence.
c) A score of greater than 225 implies high level of Emotional Intelligence.

**ii. Assessment of Anxiety**

For the evaluation of Anxiety, Sports Competitive Anxiety Test (**SCAT Rainer Martens, 1990**) was used. The questionnaire was given to the players before the match to assess the Pre-Match Anxiety levels. The questionnaire consists of 15 questions with three possible options. The scoring norms of this questionnaire are as follows;

a) A score of less than 17 implies the low level of competitive Anxiety.
b) A score of 17 and 24 implies the average level of competitive Anxiety.
c) A score of 24 implies the high level of competitive Anxiety.

**iii. Assessment of Anthropometric Measurements**

The Anthropometric Measurements were taken with the help of Rosscraft® Centurion Kit (Rosscraft, Canada). The instruments used for collection of data were anthropometric rod, weighing machine, sliding calliper and steel tape. This data also collected from the Volleyball players before the match.

**Figure 3.3.1:** Representative image of Anthropometric Measurement kit

### 3.4 Anthropometric Variables

Anthropometric variables are dimensions of the structure of human body taken at specific sites in order to acquire anthropometric measurements of Volleyball players.

**Weight:** Total weight of the body or subject and was measured in kilograms, (Kgs).

**Height:** Length of the subject, which is measured usually in centimeters, (Cm).

**Leg length:** Lower leg length measure the straight distance from the landmark tibia media to femur. Leg length is measured vertically from the bottom outside edge of the foot in the center of instep to a line drawn horizontally through the mid glutei bulge at the point tangency to vertical line contracting the buttocks, which is measured usually in centimeter (cms).

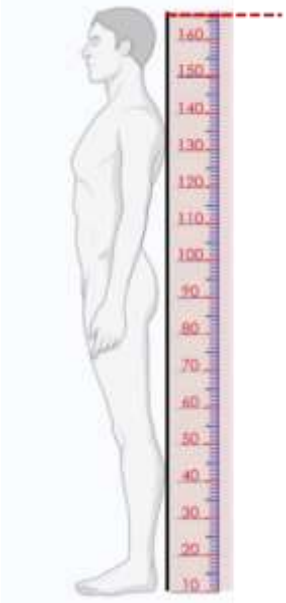
**Arm length:** From acromion to the tip of the finger. It is sometimes measured while subject is holding a wand; measurement is from acromion process to upper surface of wand, which is measured usually in centimeter (cms).

**Hand span:** It is the maximum distance measured from the tips of the thumb and little finger, which is measured usually in centimeter (cms).

**Procedure**

a) Measurements of height were taken with the standard anthropometric rod to the nearest ±0.5 cm.

**Figure 3.3.2:** Position for standing height measurement

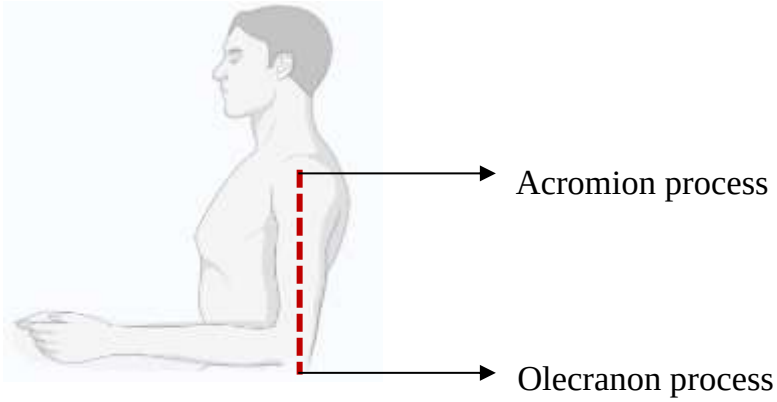



b) Body weight was measured using a portable weighing machine to the nearest ±0.5kg.

**Figure 3.3.3:** Position for weight measurement

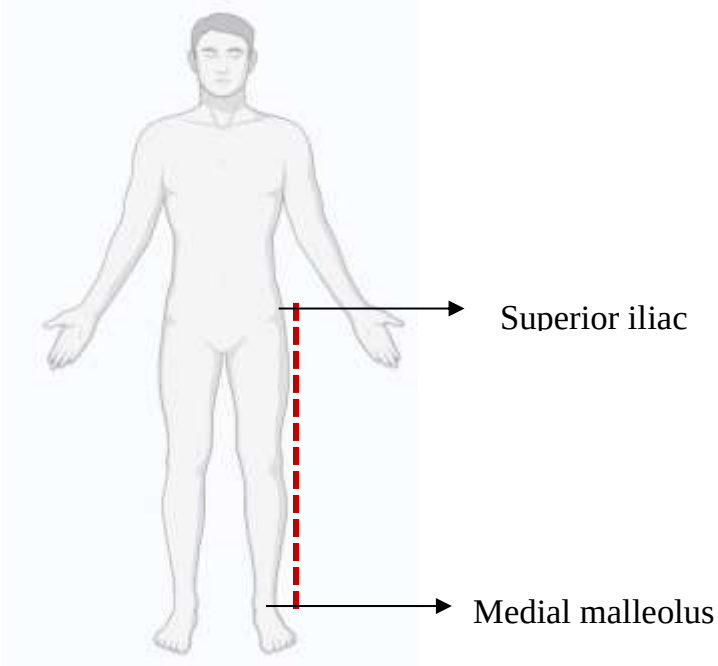
c) To measure the arm length, the subjects were instructed to stand erect with feet together and the right arm flexed 90º at the elbow with the palm facing up. The measurement was taken from the posterior border of the acromion process on the right scapula to the olecranon process of the ulna, using a sliding calliper. The measurement was taken in centimetres and then converted into inches.

**Figure 3.3.4:** Position for arm length measurement




d) The leg length was assessed using the steel tape. The candidates were instructed to lie down in a supine position and the measurement was taken in centimetres, from the anterior superior iliac spine (ASIS) of the pelvis to the medial malleolus of the ankle. It was converted into inches.

**Figure 3.3.5:** Position for leg length measurement



e) Hand span was assessed by measuring the distance between the distal phalange of the thumb to the distal phalange of the small finger with the help of a steel tape, taken in inches.

**Figure 3.3.6:** Position for hand span measurement

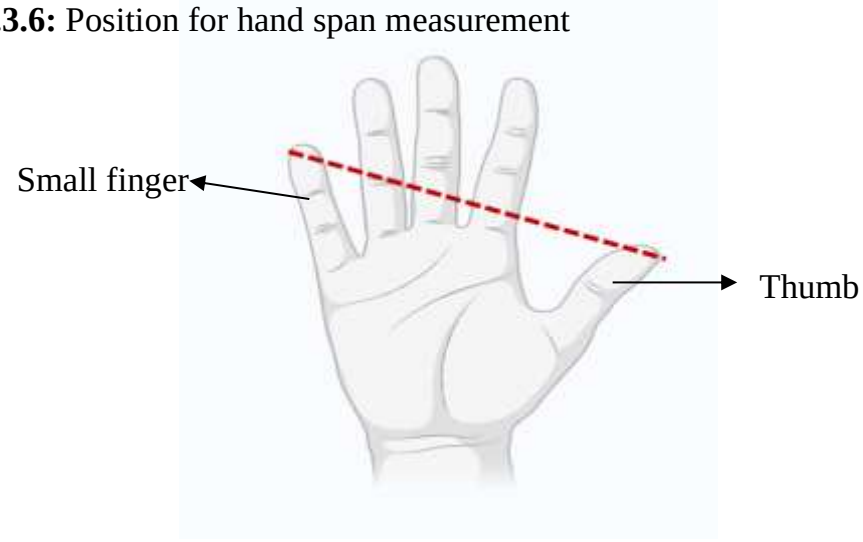



**Table 3.1: The variables considered for the Anthropometric Measurement and their Units**

| Variables | Measurement Units |
|---|---|
| Height | Centimetres |
| Weight | Kilograms |
| Arm length | Inches |
| Leg Length | Inches |
| Hand Span | Inches |

The collection of data was followed by the application of paired t-test on the data procured. The use of statistical analysis will help in the effortless Interpretation of Data in order to comprehend the Physical and Mental status of Karnataka and Tamilnadu University Volleyball players and its impact on performance. The results are evidently shown in the form of proper Tables and Graphs.

# CHAPTER IV

# ANALYSIS AND INTERPRETATION OF DATA

The result of the study is a segment which provides the necessary information regarding the finding of a particular research on the basis of the methodology undertaken. A lot of prominence is being given to the physical prerequisite of competitive sports, clearly omitting the psychological aspect. The present study involves the detailed impact of two key psychological factors, namely; Emotional Intelligence and Anxiety, in addition to the Anthropometric measurements of players on their performance. In the following section, a thorough analysis is carried out by the application of t-test to the data obtained from the survey as well as the measurements taken of the Volleyball players in the South-Zone Inter-University tournament.

## 4.1 Pre-competition Emotional Intelligence

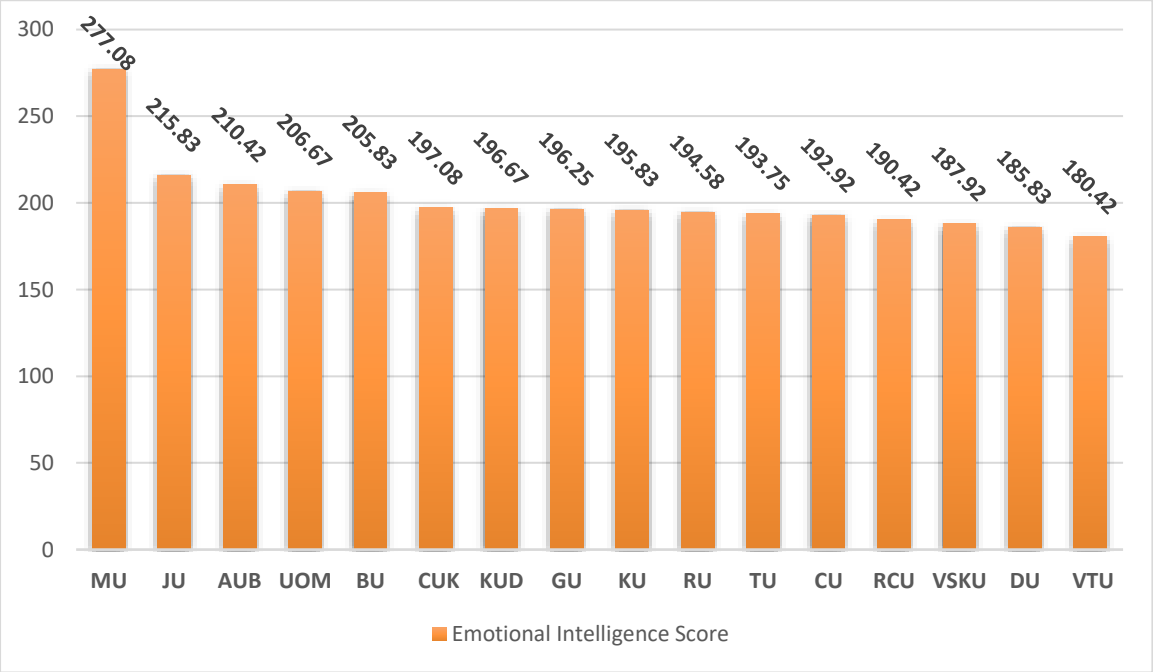
The Emotional Intelligence of the players of different University teams of Karnataka and Tamilnadu State was analysed using the data collected through the questionnaire. The details are shown in the table and the graphs given below.

**Table 4.1.1:** Average Emotional Intelligence score of players of different Universities of Karnataka

| Criteria | Teams | Score |
|---|---|---|
| **Emotional Intelligence** | Mangalore University (MU) | **277.08** |
| | Jain University (JU) | **215.83** |
| | Agricultural Science Bangalore (AUB) | **210.42** |
| | University of Mysore (UOM) | **206.67** |
| | Bangalore University (BU) | **205.83** |
| | Central University of Karnataka (CUK) | **197.08** |
| | Karnataka University (KUD) | **196.67** |
| | Gulbarga University (GU) | **196.25** |
| | Kuvempu University (KU) | **195.83** |

| | | |
|---|---|---|
| | Reva University (RU) | **194.58** |
| | Tumkur University (TU) | **193.75** |
| | Christ University (CU) | **192.92** |
| | Rani Chennamma University (RCU) | **190.42** |
| | Vijayanagara Shri Krishnadevaraya University (VSKU) | **187.92** |
| | Davangere University (DU) | **185.83** |
| | Visvesvaraya Technological University (VTU) | **180.42** |

**Figure 4.1.1:** Graphical representation of average Emotional Intelligence score of players of different Universities of Karnataka

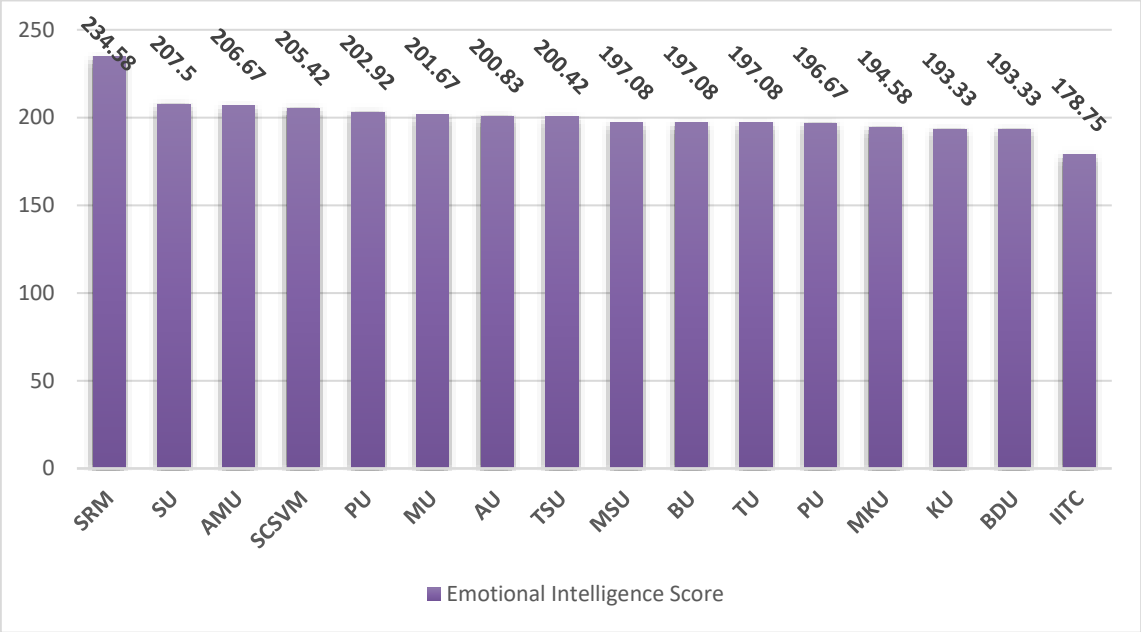



As per table and figure no. 4.1.1, the team of Mangalore University had the highest Emotional Intelligence score of 277.08 and Vishveshvaraya Technological University had the lowest Emotional Intelligence score of 180.42 among the teams in Karnataka state.

**Table 4.1.2:** Average Emotional Intelligence score of players of different Universities of Tamilnadu

| Criteria | Teams | Score |
|---|---|---|
| **Emotional Intelligence** | Sri Ramaswamy Memorial Institute of Science and Technology (SRM) | **234.58** |
| | Sathyabhama University (SU) | **207.50** |
| | Annamalai University (AMU) | **206.67** |
| | SCSVM University (SCSVM) | **205.42** |
| | Periyar University (PU) | **202.92** |
| | Madras University (MU) | **201.67** |
| | Alagappa University (AU) | **200.83** |
| | Tamilnadu Sports University (TSU) | **200.42** |
| | Manonmaniam Sundaranar University (MSU) | **197.08** |
| | Bharathiyar University (BU) | **197.08** |
| | Tiruvellur University (TU) | **197.08** |
| | Puducherry University (PU) | **196.67** |
| | Madurai Kamaraj University (MKU) | **194.58** |
| | Karunya University (KU) | **193.33** |
| | Bharathidasan University (BDU) | **193.33** |
| | Indian Institute of Technology (IITC) | **178.75** |

**Figure 4.1.2:** Graphical representation of average Emotional Intelligence score of players of different Universities of Tamilnadu

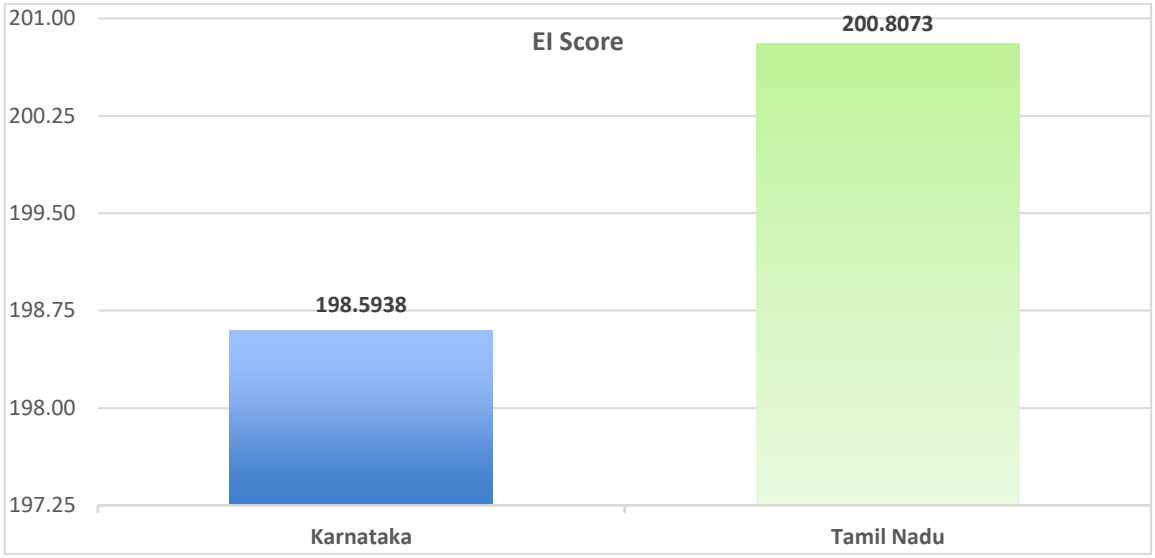



As per table and figure no. 4.1.2, among the teams of Tamilnadu state, SRM University had the highest Emotional Intelligence score of 234.58 whereas IIT Chennai had the lowest score of 178.75.

**Table 4.1.3:** Comparative statistics of the average Emotional Intelligence levels in the Karnataka and Tamilnadu University teams

| State | No. of teams | Minimum | Maximum | Mean | Std. Error | Std. Deviation | t value | *p* value | Significance |
|---|---|---|---|---|---|---|---|---|---|
| **Karnataka** | 16 | 180.42 | 227.08 | 198.59 | 2.97 | 11.91 | -0.541 | 0.593 | **Not Significant** |
| **Tamilnadu** | 16 | 178.75 | 234.58 | 200.80 | 2.8 | 11.23 | | | |

**Figure 4.1.3:** Graphical representation of comparative statistics of the average Emotional Intelligence levels in the Karnataka and Tamilnadu University teams




As per the statistical table and figure no. 4.1.3, the average Emotional Intelligence score of Tamilnadu State University Volleyball teams was slightly higher (Score:234.58; S.D:11.23) than that of the Karnataka State University Volleyball teams (Score:227.08; S.D:11.91). It clearly indicates that there is No Significant statistical difference of *p* value, 0.593 which was higher than the significance value <0.05. For this reason, the top-scoring teams are consistently achieving every year.

This justifies that, both the State University Volleyball players are maintaining a positive Emotional condition in pre-competition sessions to create favorable results in the match.

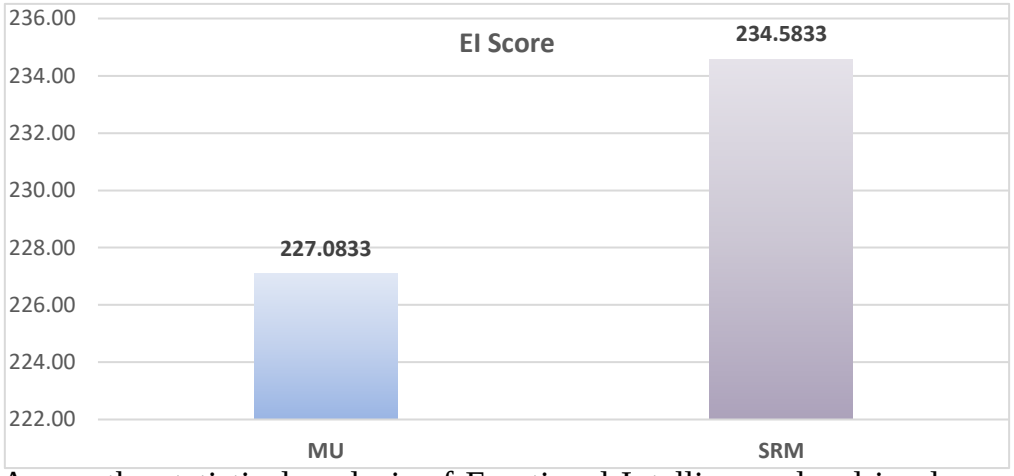
Therefore, Tamilnadu University Volleyball players possess good emotional stability in pre-competition conditions. It might impact their performance during matches. As a result, a greater number of Volleyball teams are qualified for the pre-quarterfinals from the state of Tamilnadu.

**Comparison between top-performing teams from Karnataka and Tamilnadu**

**Table 4.1.4:** Comparative statistics of the average Emotional Intelligence levels in top teams of Karnataka and Tamilnadu State

| Criteria | State | Mean | Std. Deviation | t value | *p* value | Significance |
|---|---|---|---|---|---|---|
| **Emotional Intelligence** | Mangalore University Karnataka | 227.08 | 18.52 | -1.06 | 0.30 | **Not Significant** |
| | SRM Tamilnadu | 234.58 | 16.01 | | | |

**Figure 4.1.4:** Graphical representation of comparative statistics of the average Emotional Intelligence levels in top teams of Karnataka and Tamilnadu State




As per the statistical analysis of Emotional Intelligence level in players of top performing teams of Karnataka and Tamilnadu Table.no 4.1.4 the t-test resulted in a *p* value is 0.30. Since the value is more than 0.05, the difference in Emotional Intelligence levels is considered to be statistically not significant. The analysis shows that there is no significant difference in the level of Emotional Intelligence among players of top-performing teams of Karnataka and Tamilnadu. Usually, the top

performing teams do not show significant difference as only the best teams represent the national level of the tournament.

### 4.2 Pre-Competition Anxiety

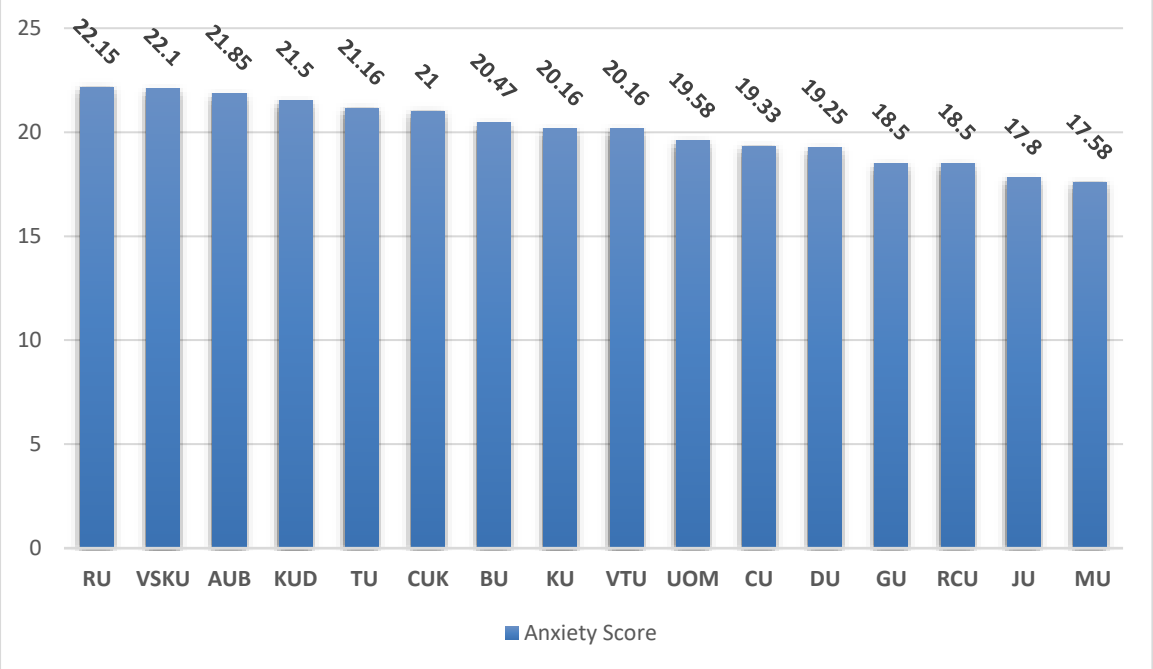
The scores obtained by applying the Sports Competition Anxiety Test (SCAT) by Rainer Martens, 1990 were used to judge the level of pre-competition Anxiety. Data showing the comparative statistics of the Anxiety levels of Karnataka and Tamilnadu teams are given below.

**Table 4.2.1:** Anxiety levels of players from different Universities in Karnataka

| Criteria | Teams | Score |
|---|---|---|
| **Anxiety Level** | Reva University (RU) | **22.15** |
| | Vijayanagara Shri Krishnadevaraya University (VSKU) | **22.10** |
| | Agricultural Science Bangalore (AUB) | **21.85** |
| | Karnataka University (KUD) | **21.50** |
| | Tumkur University (TU) | **21.16** |
| | Central University of Karnataka (CUK) | **21.00** |
| | Bangalore University (BU) | **20.47** |
| | Kuvempu University (KU) | **20.16** |
| | Visvesvaraya Technological University (VTU) | **20.16** |
| | University of Mysore (UOM) | **19.58** |
| | Christ University (CU) | **19.33** |
| | Davangere University (DU) | **19.25** |
| | Gulbarga University (GU) | **18.50** |
| | Rani Chennamma University (RCU) | **18.50** |

| | | |
|---|---|---|
| | Jain University (JU) | **17.80** |
| | Mangalore University (MU) | **17.58** |

**Figure 4.2.1:** Graphical representation of Anxiety levels of players from different Universities in Karnataka



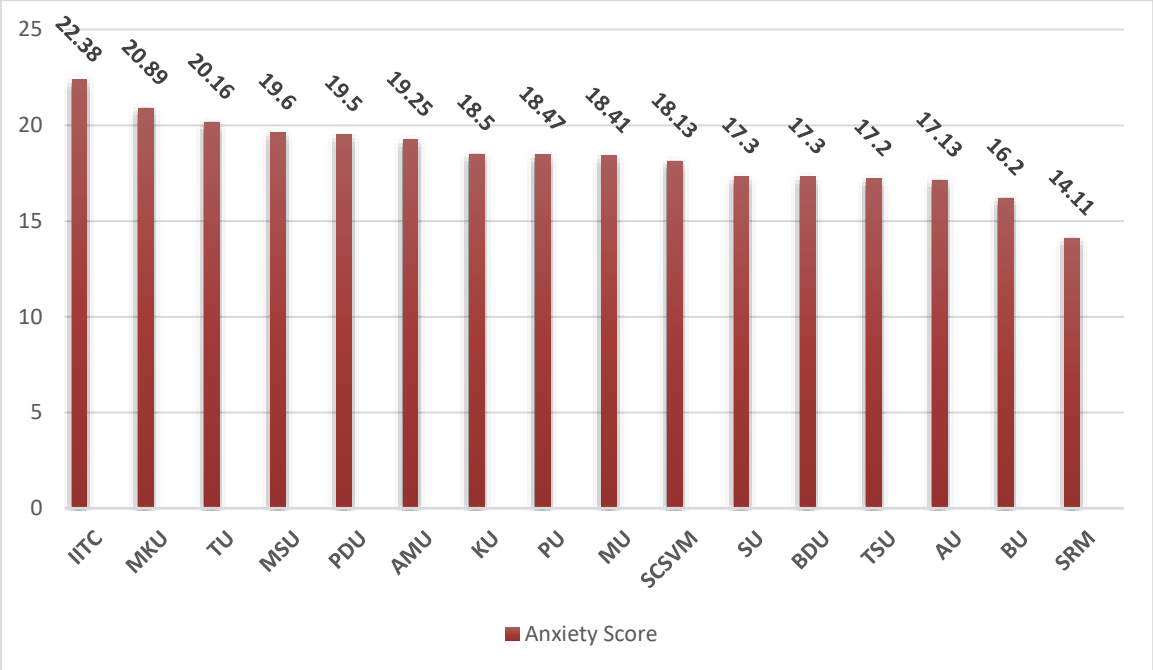

As per table and figure no. 4.2.1, Anxiety scores of different University teams in Karnataka indicate that among the teams of Karnataka, Reva University team showed the highest score of 22.15. Whereas, the lowest Anxiety score was that of Mangalore University with 17.58. It was noted that none of the teams had Anxiety scores below 17 and above 23.

**Table 4.2.2:** Anxiety levels of players from different Universities of Tamilnadu

| Criteria | Teams | Score |
|---|---|---|
| | Indian Institute of Technology (IITC) | **22.38** |
| | Madurai Kamaraj University (MKU) | **20.89** |
| | Tiruvellur University (TU) | **20.16** |
| | Manonmaniam Sundaranar University (MSU) | **19.60** |
| | Puducherry University (PDU) | **19.50** |
| | Annamalai University (AMU) | **19.25** |

| | | |
|---|---|---|
| **Anxiety level** | Karunya University (KU) | **18.50** |
| | Periyar University (PU) | **18.47** |
| | Madras University (MU) | **18.41** |
| | SCSVM University (SCSVM) | **18.13** |
| | Sathyabhama University (SU) | **17.30** |
| | Bharathidasan University (BDU) | **17.30** |
| | Tamilnadu Sports University (TSU) | **17.20** |
| | Alagappa University (AU) | **17.13** |
| | Bharathiyar University (BU) | **16.20** |
| | Sri Ramaswamy Memorial Institute of Science and Technology (SRM) | **14.11** |

**Figure 4.2.2:** Graphical representation of Anxiety levels of players from different Universities of Tamilnadu



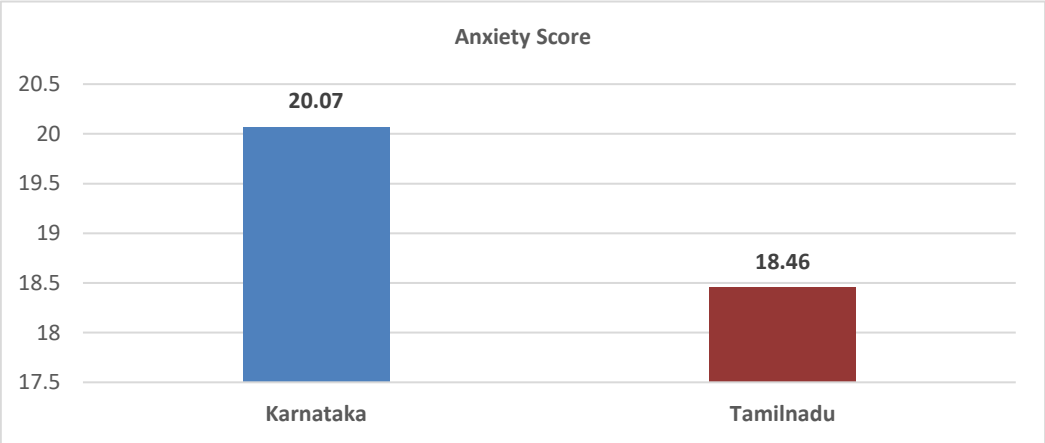

As per table and figure no. 4.2.2, Anxiety scores of different university teams of Tamilnadu shows that the team from SRM with the score of 14.11, was the lowest Anxiety score among teams of Tamilnadu State Universities. Whereas, IIT, Chennai team had the highest score of about 22.38. Among the teams of Tamilnadu state, two teams- SRM and Bharathiyar University Volleyball players are Anxiety scores below

17. Even in the case of the teams of Tamilnadu, none of them showed an Anxiety score above 23. It clearly indicates the degree of control over Anxiety regarding the opponent team or player performance, thus preventing its consequences during the game. For this reason, the teams are well deserved to secure first to third position in the South-Zone Inter-University Volleyball tournament.

**Table 4.2.3:** Comparative statistics of the Anxiety levels of Karnataka and Tamilnadu University teams

| Criteria | State | No. of teams | Minimum | Maximum | Mean | Std. Error | Std. Deviation | t-value | *p* value | Significance |
|---|---|---|---|---|---|---|---|---|---|---|
| Anxiety levels | Karnataka | 16 | 17.58 | 22.15 | 20.068 | 0.375 | 1.497 | 2.63 | 0.013 | Significant |
| | Tamilnadu | 16 | 14.11 | 22.38 | 18.458 | 0.484 | 1.934 | | | |

**Figure 4.2.3:** Graphical representation of comparative statistics of the Anxiety levels of Karnataka and Tamilnadu State University teams




As per table and figure no. 4.2.3 gives the statistical analysis of the Anxiety level, in Karnataka and Tamilnadu teams. The 't' test values obtained have *p* value 0.013<0.05, showing the difference in Anxiety, the level is statistically significant. The above analysis shows the Anxiety level among the players of Karnataka is Significantly higher than that of Tamilnadu.

**Correlation between Anxiety Level and Emotional Intelligence**

In order to determine whether a significant relationship exists between Anxiety and Emotional Intelligence, Pearson's correlation test was used and the results are shown below.

**Table 4.2.4:** Correlation between Anxiety and Emotional Intelligence

| **Correlations** | | | |
|---|---|---|---|
| | | Anxiety | Emotional Intelligence |
| Anxiety | Pearson Correlation | 1 | -.717 |
| | Sig. (2-tailed) | | .020 |
| | N | 320 | 320 |
| Emotional Intelligence | Pearson Correlation | -.717 | 1 |
| | Sig. (2-tailed) | .020 | |
| | N | 320 | 320 |

Table no. 4.2.4 shows a Significant negative relationship between Anxiety and Emotional Intelligence (r=-0.717). Since *p* value is less than 0.05, the null hypothesis is rejected at a 5% Significance level is accepted. Therefore, it can be concluded that an increase in the level of Emotional Intelligence and a decrease in the level of Anxiety shows a direct influence on the performance of Volleyball players of Karnataka and Tamilnadu State University.

**4.3 Anthropometric Studies**

The Anthropometric data encompassing different criteria of physical pre-requisite of the Volleyball players of Karnataka and Tamilnadu State University players taken

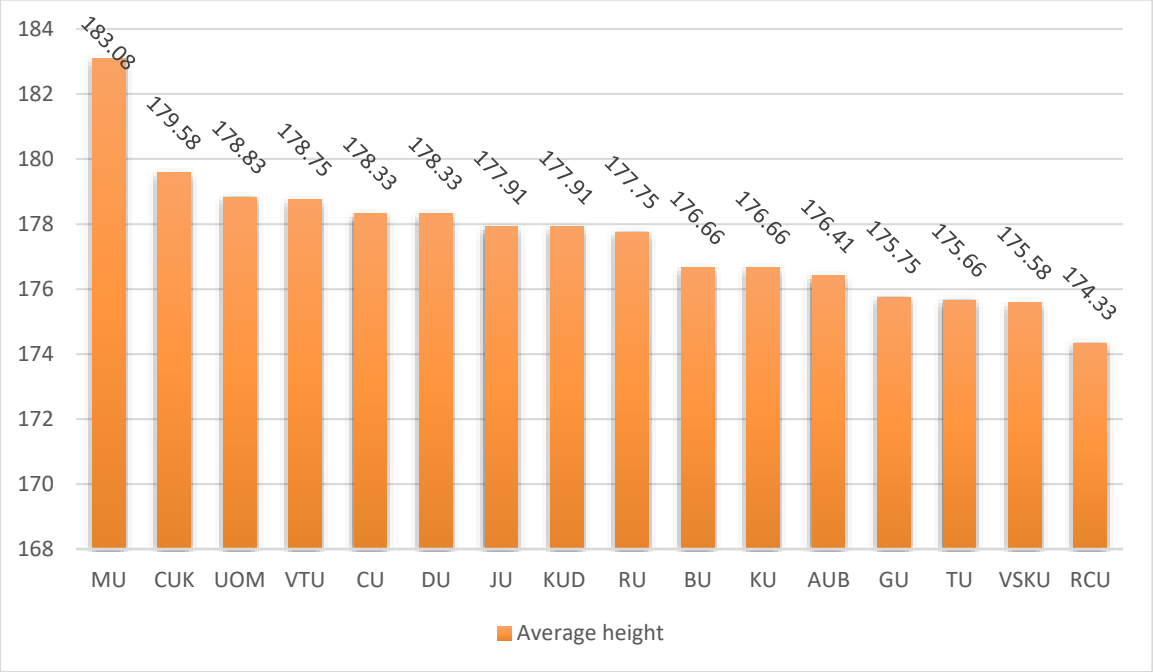
into consideration were analyzed. The results in the form of tables and graphs are given below.

**Height of Volleyball Players**

**Table 4.3.1.1:** Average Height of the players in different Universities of Karnataka

| Criteria | Teams | Average Height (Cms) |
|---|---|---|
| Player Height | Mangalore University (MU) | **183.08** |
| | Central University of Karnataka (CUK) | **179.58** |
| | University of Mysore (UOM) | **178.83** |
| | Visvesvaraya Technological University (VTU) | **178.75** |
| | Christ University (CU) | **178.33** |
| | Davanagere University (DU) | **178.33** |
| | Jain University (JU) | **177.91** |
| | Karnataka University (KUD) | **177.91** |
| | Gulbarga University (GU) | **175.75** |
| | Reva University (RU) | **177.75** |
| | Bangalore University (BU) | **176.66** |
| | Kuvempu University (KU) | **176.66** |
| | Agricultural Science Bangalore (AUB) | **176.41** |
| | Tumkur University (TU) | **175.66** |
| | Vijayanagara Shri Krishnadevaraya University (VSKU) | **175.58** |
| | Rani Chennamma University (RCU) | **174.33** |

**Figure 4.3.1.1**: Graphical representation of average Height of the players in different Universities of Karnataka

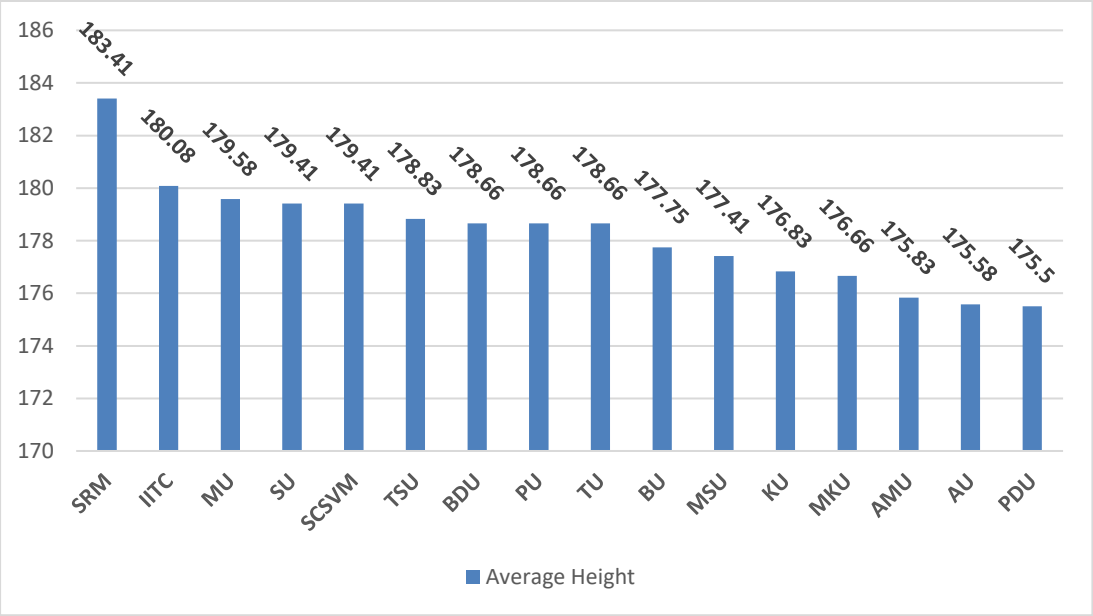



As per table and figure no. 4.3.1.1, the average Height of players at Mangalore University stands the highest at 183.08 cm whereas the players of the Rani Chennamma University show the average height of 174.33 cm which is considered to be the least among all the different university teams of Karnataka taken into consideration. The height of the players is considered an indicator of performance skill and techniques, especially in the game of Volleyball where it plays a major role. The team of Mangalore University were regularly qualifying for the All India Inter-University Tournament and represented South Zone for the past 14 years. It clearly indicates that, Height of the players, especially for the principal Blocker and Attacker to execute their skills and techniques against opponent teams is a critical physical pre-requisite for a Volleyball player.

**Table 4.3.1.2:** Average Height of players of different Universities of Tamilnadu

| Criteria | Teams | Average Height (Cms) |
|---|---|---|
| Player Height | Sri Ramaswamy Memorial Institute of Science and Technology (SRM) | **183.41** |
| | Indian Institute of Technology (IITC) | **180.08** |
| | Madras University (MU) | **179.58** |
| | Sathyabhama University (SU) | **179.41** |
| | SCSVM University (SCSVM) | **179.41** |
| | Tamilnadu Sports University (TSU) | **178.83** |
| | Bharathidasan University (BDU) | **178.66** |
| | Periyar University (PU) | **178.66** |
| | Tiruvellur University (TU) | **178.66** |
| | Bharathiyar University (BU) | **177.75** |
| | Manonmaniam Sundaranar University (MSU) | **177.41** |
| | Karunya University (KU) | **176.83** |
| | Madurai Kamaraj University (MKU) | **176.66** |
| | Annamalai University (AMU) | **175.83** |
| | Alagappa University (AU) | **175.58** |
| | Puducherry University (PDU) | **175.50** |

**Figure 4.3.1.2:** Graphical representation of average Height of players of different Universities of Tamilnadu

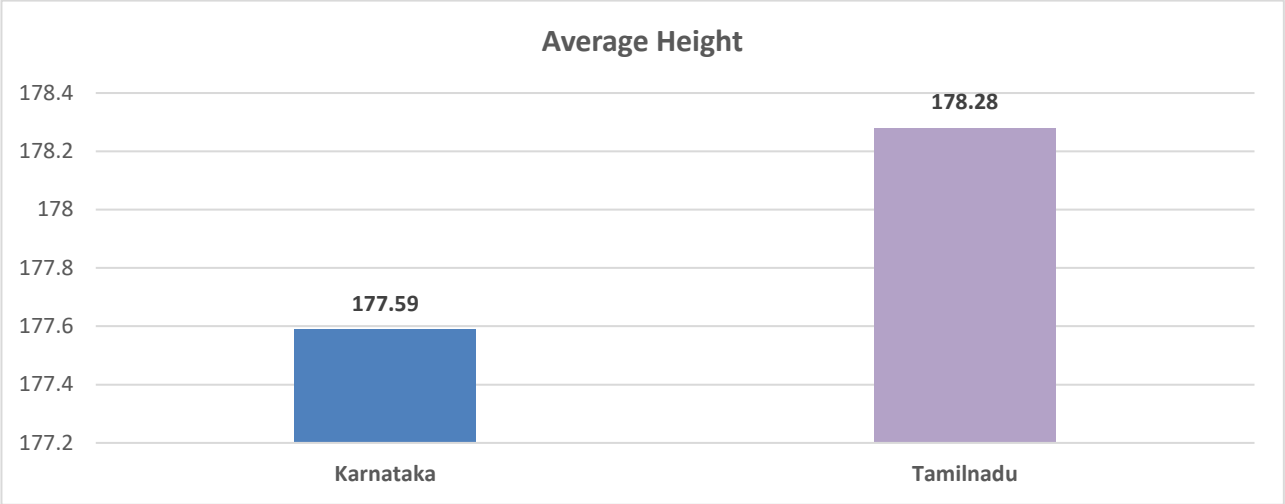



As per the table and figure no. 4.3.1.2, the average Height of the players of different teams of Tamilnadu states that SRM University has players showing the highest average height of 183.41 cm. At the same time, the players of Puducherry University show an average height of 175.5 cm which is mentioned to be the lowest among all the different teams taken into consideration in the state of Tamilnadu. For the last 16 years, S.R.M. University of Tamilnadu entered the qualifying round in the south-zone Inter-University Volleyball competition, securing one to third position in the All-India Inter-University tournament. It clearly indicates that, when compared to the Karnataka team, Mangalore University players have a height of 0.33 cm less than S.R.M University Volleyball players.

**Table 4.3.1.3:** Comparative statistics of the average player Height of Karnataka and Tamilnadu State University teams

| Criteria | State | No. of teams | Minimum | Maximum | Mean | Std. Error | Std. Deviation | t value | *p* value | Significance |
|---|---|---|---|---|---|---|---|---|---|---|
| **Player Height (cm)** | Karnataka | 16 | 174.33 | 183.08 | 177.59 | 0.51 | 2.05 | -0.932 | 0.359 | **Not Significant** |
| | Tamilnadu | 16 | 175.50 | 183.41 | 178.26 | 0.50 | 2.02 | | | |

**Figure 4.3.1.3:** Graphical representation of comparative statistics of the average player Height of Karnataka and Tamilnadu State University teams




The table and graph no. 4.3.1.3 gives the statistical analysis of the average player Height of Karnataka and Tamilnadu teams. The Karnataka State University has a maximum height of the player is 183.08 and the Tamilnadu State University players are 183.41. In addition to this, the minimum height is 174.33 and 175.50 respectively. The 't' test values show that the *p* value is 0.359>0.05, showing No statistical Significance. It clearly shows that Tamilnadu University players are slightly taller when compared to the Karnataka University players.

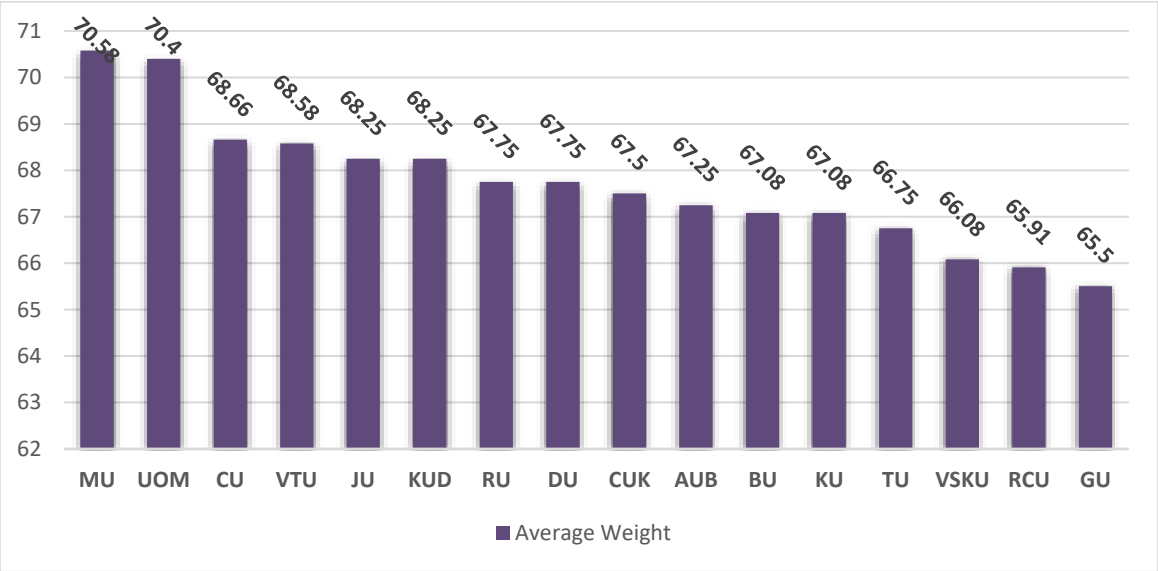
**Weight of the Volleyball Players**

**Table 4.3.2.1:** Average Weight of players of different Universities of Karnataka

| **Criteria** | **Teams** | **Average Weight (Kgs)** |
|---|---|---|
| | Mangalore University (MU) | **70.58** |
| | University of Mysore (UOM) | **70.40** |
| | Christ University (CU) | **68.66** |
| | Visvesvaraya Technological University (VTU) | **68.58** |

| | | |
|---|---|---|
| **Player Weight** | Jain University (JU) | **68.25** |
| | Karnataka University (KUD) | **68.25** |
| | Reva University (RU) | **67.75** |
| | Davanagere University (DU) | **67.75** |
| | Central University of Karnataka (CUK) | **67.50** |
| | Agricultural Science Bangalore (AUB) | **67.25** |
| | Bangalore University (BU) | **67.08** |
| | Kuvempu University (KU) | **67.08** |
| | Tumkur University (TU) | **66.75** |
| | Vijayanagara Shri Krishnadevaraya University (VSKU) | **66.08** |
| | Rani Chennamma University (RCU) | **65.91** |
| | Gulbarga University (GU) | **65.50** |

**Figure 4.3.2.1:** Graphical representation of average Weight of players of different Universities of Karnataka



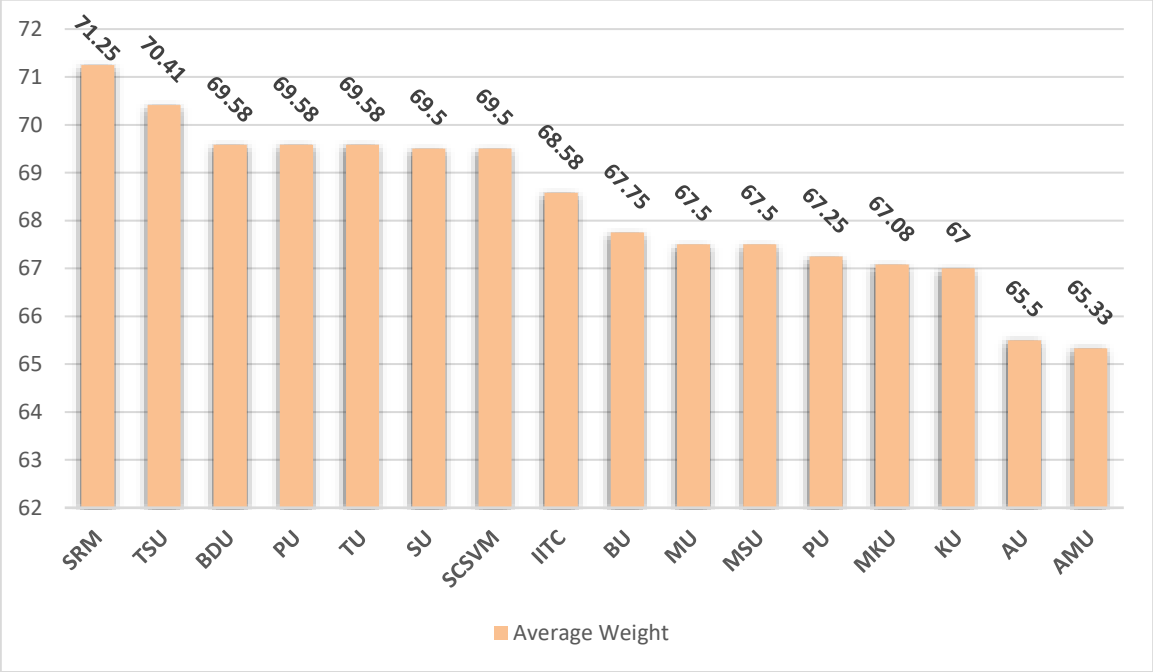
As per the table and figure no. 4.3.2.1, the average Weight of players of different teams in Karnataka indicates that the players under Mangalore University show a maximum average weight of 70.58 kg. Whereas, the players of the Gulbarga University show the minimum average weight of 65.5 kg as compared to all the mentioned Universities in this study.

**Table 4.3.2.2:** Average Weight of players of different Universities of Tamilnadu

| Criteria | Teams | Average Weight (Kgs) |
|---|---|---|
| **Player Weight** | Sri Ramaswamy Memorial Institute of Science and Technology (SRM) | **71.25** |
| | Tamilnadu Sports University (TSU) | **70.41** |
| | Bharathidasan University (BDU) | **69.58** |
| | Periyar University (PU) | **69.58** |
| | Tiruvellur University (TU) | **69.58** |
| | Sathyabhama University (SU) | **69.50** |
| | SCSVM University (SCSVM) | **69.50** |
| | Indian Institute of Technology (IITC) | **68.58** |
| | Bharathiyar University (BU) | **67.75** |
| | Madras University (MU) | **67.50** |
| | Manonmaniam Sundaranar University (MSU) | **67.50** |
| | Puducherry University (PU) | **67.25** |
| | Madurai Kamaraj University (MKU) | **67.08** |
| | Karunya University (KU) | **67.00** |

| | | |
|---|---|---|
| | Alagappa University (AU) | **65.50** |
| | Annamalai University (AMU) | **65.33** |

**Figure 4.3.2.2:** Graphical representation of average Weight of players of different Universities of Tamilnadu



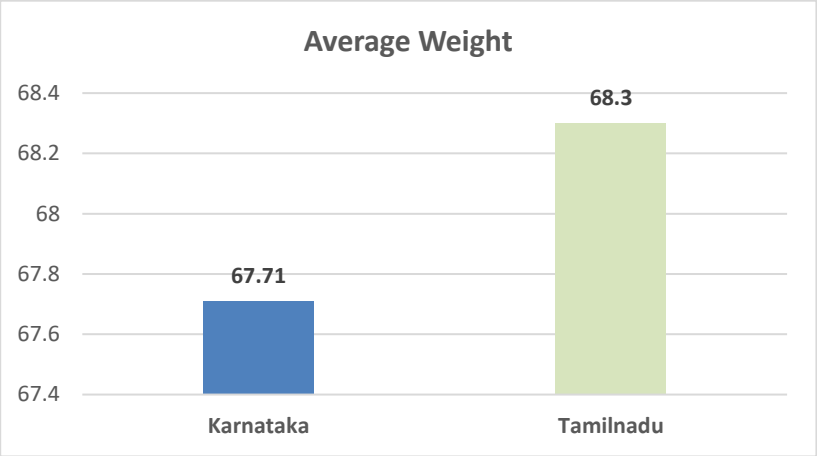

As per the table and figure no. 4.3.2.2, the average Weight of the players in the game of Volleyball, S.R.M University players of Tamilnadu State show higher score of 71.25 kg and the minimum weight is 65.33 kg in respect to Tamilnadu State University Volleyball players.

Mangalore University Volleyball players of Karnataka State show 70.58 kg as average weight. It clearly indicates that, there is no much difference between top performing teams of Karnataka and Tamilnadu Volleyball players with an average weight of 0.67 kg, wherein S.R.M University of Tamilnadu has higher weight. Even though, it does not cause much of an impact, as a Volleyball player can execute the techniques with an explosive motor quality of explosive quality of strength. Hence, it can be come to the conclusion that; weight also contributes for better performance in the game of Volleyball.

**Table 4.3.2.3:** Comparative statistics of the average player Weight of Karnataka and Tamilnadu State University teams

| Criteria | State | No. of teams | Minimum | Maximum | Mean | Std. Error | Std. Deviation | t value | *p* value | Significance |
|---|---|---|---|---|---|---|---|---|---|---|
| **Player Weight (kg)** | Karnataka | 16 | 65.5 | 70.58 | 67.71 | 0.35 | 1.42 | -1.071 | 0.293 | **Not Significant** |
| | Tamilnadu | 16 | 65.33 | 71.25 | 68.3 | 0.42 | 1.7 | | | |

**Figure 4.3.2.3:** Graphical representation of comparative statistics of the average player Weight of Karnataka and Tamilnadu State University teams



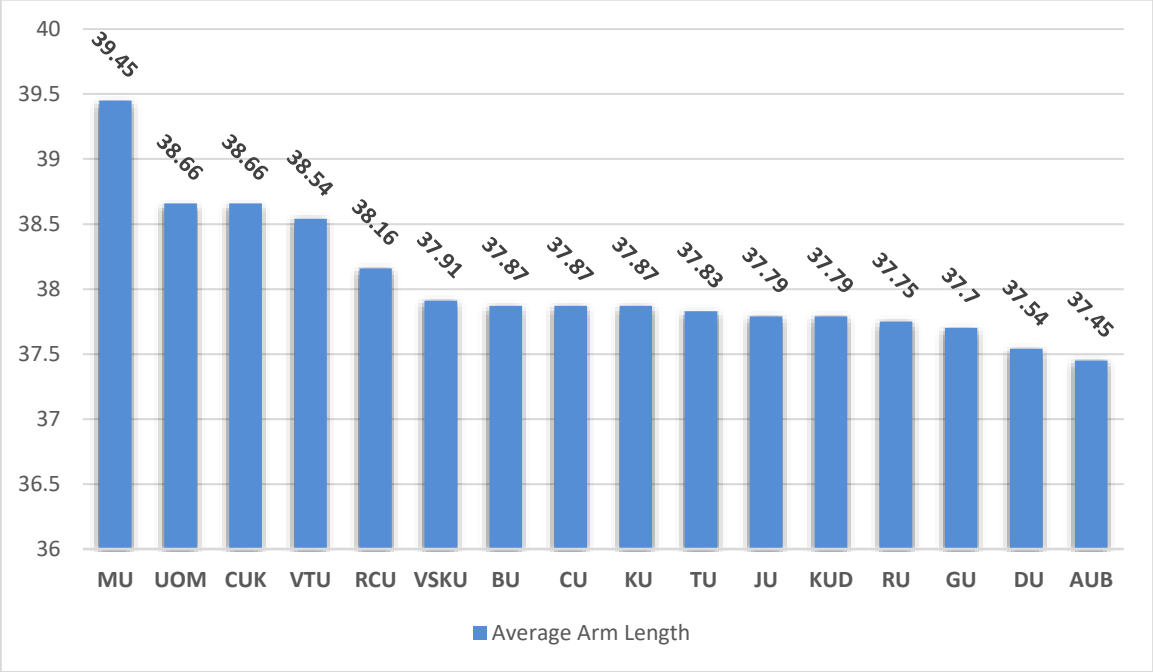

As per the table and figure no. 4.3.2.3 gives the statistical analysis of the average player Weight of Karnataka and Tamilnadu teams. The 't' test values show that the *p* value is 0.293>0.05, showing No statistical Significance.

**Arm Length of Volleyball Players**

**Table 4.3.3.1:** Average Arm Length of players of different Universities of Karnataka

| Criteria | Teams | Average Length (cms) |
|---|---|---|
| Player Arm Length | Mangalore University (MU) | **39.45** |
| | University of Mysore (UOM) | **38.66** |
| | Central University of Karnataka (CUK) | **38.66** |
| | Visvesvaraya Technological University (VTU) | **38.54** |
| | Rani Chennamma University (RCU) | **38.16** |
| | Vijayanagara Shri Krishnadevaraya University (VSKU) | **37.91** |
| | Bangalore University (BU) | **37.87** |
| | Christ University (CU) | **37.87** |
| | Kuvempu University (KU) | **37.87** |
| | Tumkur University (TU) | **37.83** |
| | Jain University (JU) | **37.79** |
| | Karnataka University (KUD) | **37.79** |
| | Reva University (RU) | **37.75** |
| | Gulbarga University (GU) | **37.70** |
| | Davanagere University (DU) | **37.54** |
| | Agricultural Science Bangalore (AUB) | **37.45** |

**Figure 4.3.3.1:** Graphical representation of average Arm Length of players of different Universities of Karnataka



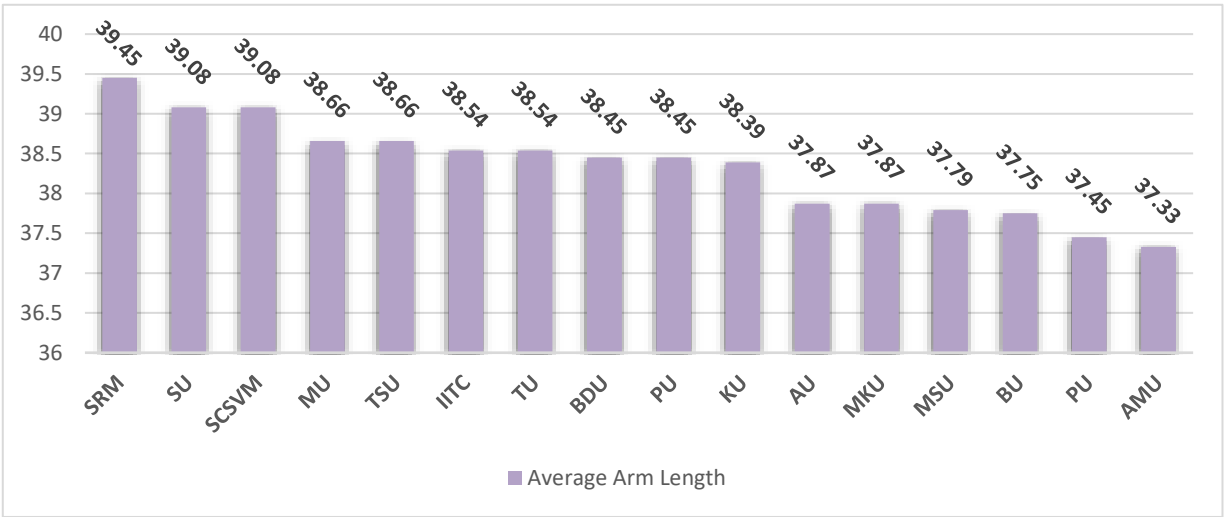

As per the table and figure no. 4.3.3.1, the players of Mangalore University show the highest average Arm Length score of 39.45 cm. Whereas, the players of the Agricultural Science University presented the lowest score of 37.45 cm among all the different teams of Karnataka taken into account.

**Table 4.3.3.2:** Average Arm Length of players of different Universities of Tamilnadu

| Criteria | Teams | Average Length (Cms) |
|---|---|---|
| Player Arm Length | Sri Ramaswamy Memorial Institute of Science and Technology (SRM) | **39.45** |
| | Sathyabhama University (SU) | **39.08** |
| | SCSVM University (SCSVM) | **39.08** |
| | Madras University (MU) | **38.66** |
| | Tamilnadu Sports University (TSU) | **38.66** |

| | | |
|---|---|---|
| | Indian Institute of Technology (IITC) | **38.54** |
| | Tiruvellur University (TU) | **38.54** |
| | Bharathidasan University (BDU) | **38.45** |
| | Periyar University (PU) | **38.45** |
| | Karunya University (KU) | **38.39** |
| | Alagappa University (AU) | **37.87** |
| | Madurai Kamaraj University (MKU) | **37.87** |
| | Manonmaniam Sundaranar University (MSU) | **37.79** |
| | Bharathiyar University (BU) | **37.75** |
| | Puducherry University (PU) | **37.45** |
| | Annamalai University (AMU) | **37.33** |

**Figure 4.3.3.2:** Graphical representation of average Arm Length of players of different Universities of Tamilnadu



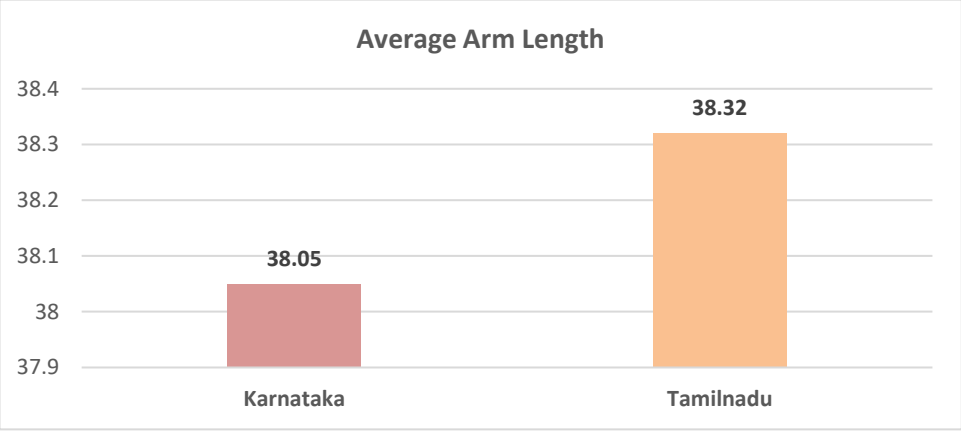

As per the table and figure no. 4.3.3.2, the players of SRM University show the maximum score for an average Arm Length of 39.45 cm. Annamalai University, on

the other hand, presents the lowest score of 37.33 cm among all the different teams of Tamilnadu taken into consideration in this study.

**Table 4.3.3.3:** Comparative statistics of the average player Arm Length of Karnataka and Tamilnadu State University team

| Criteria | State | No. of teams | Min. | Max. | Mean | Std. Error | Std. Deviation | t value | *p* value | Significance |
|---|---|---|---|---|---|---|---|---|---|---|
| **Player Arm Length (cm)** | Karnataka | 16 | 37.45 | 39.5 | 38.05 | 0.13 | 0.52 | -1.379 | 0.178 | **Not Significant** |
| | Tamilnadu | 16 | 37.33 | 39.5 | 38.32 | 0.15 | 0.6 | | | |

**Figure 4.3.3.3:** Graphical representation of comparative statistics of the average Player Arm Length of Karnataka and Tamilnadu State University teams




The above-mentioned table and figure no. 4.3.3.3 gives the statistical analysis of the average player Arm Length of Karnataka and Tamilnadu teams. The 't' test values show that the *p* value is 0.178>0.05, showing No statistical Significance. This indicates that, there is no difference in the Arm Length of the Karnataka and Tamilnadu Volleyball players in a maximum Arm Length. In case of minimum Arm Length slight variations of 0.12 cm was found. It clearly suggests that, there is No

Significant difference in the Arm length. Even though Karnataka Volleyball players have slightly greater arm length than the Tamilnadu Volleyball players in minimum Arm Length, it might give a boost to the players in the game.

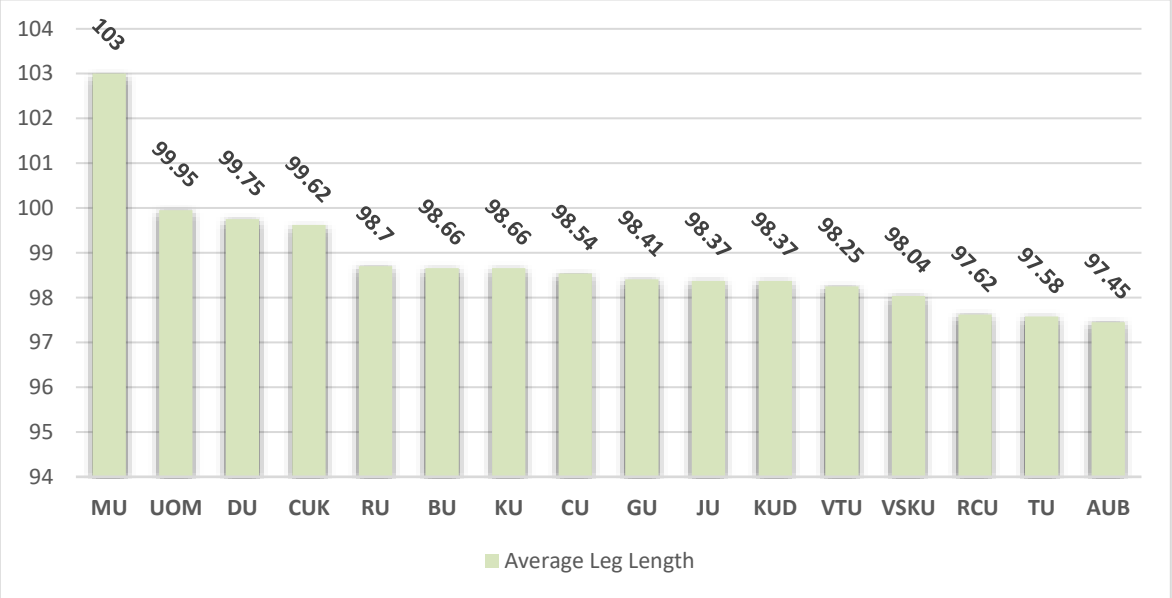
**Leg Length of Volleyball Players**

**Table 4.3.4.1:** Average Leg Length of players of different Universities of Karnataka

| Criteria | Teams | Average Length (Cm) |
|---|---|---|
| Player Leg Length | Mangalore University (MU) | **103.00** |
| | University of Mysore (UOM) | **99.95** |
| | Davanagere University (DU) | **99.75** |
| | Central University of Karnataka (CUK) | **99.62** |
| | Reva University (RU) | **98.70** |
| | Bangalore University (BU) | **98.66** |
| | Kuvempu University (KU) | **98.66** |
| | Christ University (CU) | **98.54** |
| | Gulbarga University (GU) | **98.41** |
| | Jain University (JU) | **98.37** |
| | Karnataka University (KUD) | **98.37** |
| | Visvesvaraya Technological University (VTU) | **98.25** |
| | Vijayanagara Shri Krishnadevaraya University (VSKU) | **98.04** |
| | Rani Chennamma University (RCU) | **97.62** |
| | Tumkur University (TU) | **97.58** |

| | | |
|---|---|---|
| | Agricultural Science Bangalore (AUB) | **97.45** |

**Figure 4.3.4.1:** Graphical representation of average Leg Length of players of different Universities of Karnataka



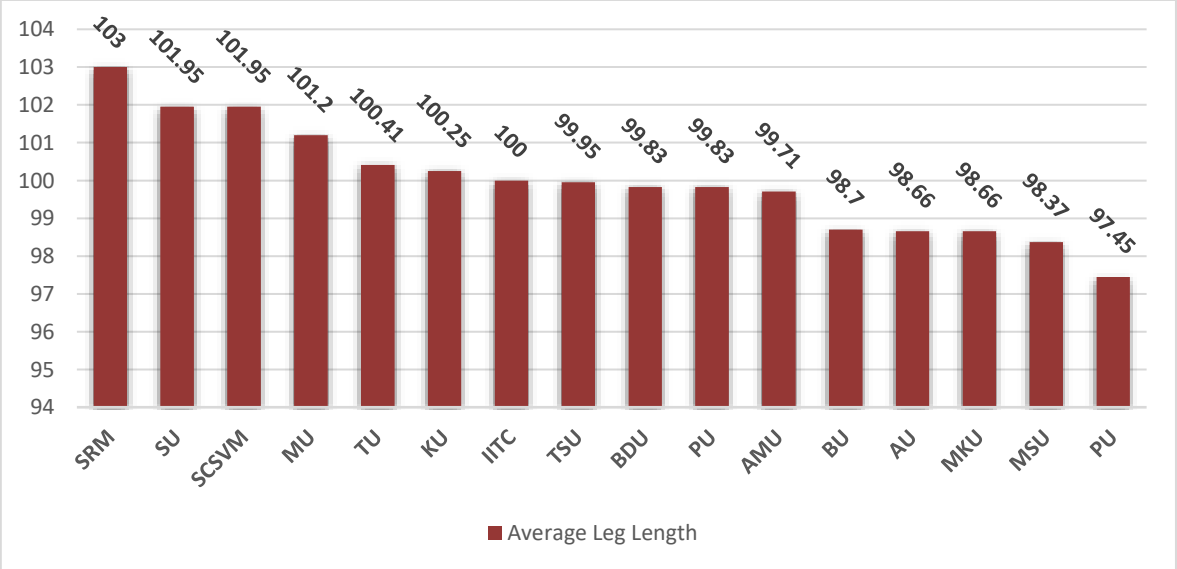

As per the table and figure no. 4.3.4.1, among the average Leg Length of different teams of Karnataka, Mangalore University presents the highest score of 103 cm. The players of Agricultural University show the average leg length of about 97.45 cm, which is believed to be the lowest score when compared to the rest of the teams taken into consideration.

**Table 4.3.4.2:** Average Leg Length of players of different Universities of Tamilnadu

| **Criteria** | **Teams** | **Average Length (Cm)** |
|---|---|---|
| | Sri Ramaswamy Memorial Institute of Science and Technology (SRM) | **103.00** |
| | Sathyabhama University (SU) | **101.95** |

| | | |
|---|---|---|
| **Player Leg Length** | SCSVM University (SCSVM) | **101.95** |
| | Madras University (MU) | **101.20** |
| | Tiruvellur University (TU) | **100.41** |
| | Karunya University (KU) | **100.25** |
| | Indian Institute of Technology (IITC) | **100.00** |
| | Tamilnadu Sports University (TSU) | **99.95** |
| | Bharathidasan University (BDU) | **99.83** |
| | Periyar University (PU) | **99.83** |
| | Annamalai University (AMU) | **99.71** |
| | Bharathiyar University (BU) | **98.70** |
| | Alagappa University (AU) | **98.66** |
| | Madurai Kamaraj University (MKU) | **98.66** |
| | Manonmaniam Sundaranar University (MSU) | **98.37** |
| | Puducherry University (PU) | **97.45** |

**Figure 4.3.4.2:** Graphical representation of Average Leg Length of players of different Universities of Tamilnadu

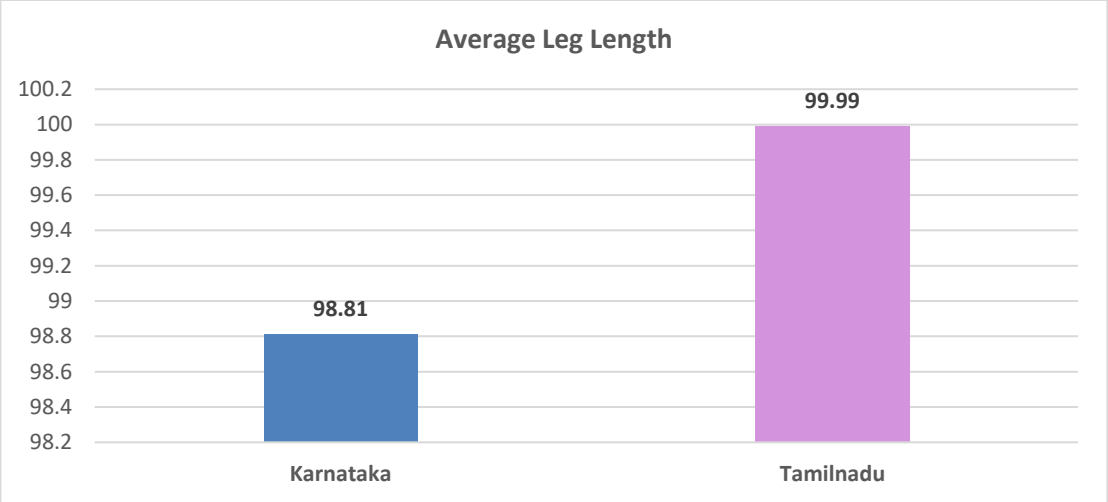


As per the table and figure no. 4.3.4.2, the average Leg Length of different teams of Tamilnadu shows the players of the SRM University having the highest score of 103 cm. Apart from all the teams taken into account, the players belonging to Puducherry University show an average leg length of 97.45 cm which is considered to be the lowest score.

**Table 4.3.4.3:** Comparative statistics of the average player Leg Length of Karnataka and Tamilnadu State University teams

| Criteria | State | No. of teams | Minimum | Maximum | Mean | Std. Error | Std. Deviation | t value | *p* value | Significance |
|---|---|---|---|---|---|---|---|---|---|---|
| **Player Leg Length (cm)** | Karnataka | 16 | 97.45 | 103 | 98.81 | 0.33 | 1.33 | -2.37 | 0.024 | **Not Significant** |
| | Tamilnadu | 16 | 97.45 | 103 | 99.99 | 0.37 | 1.48 | | | |

**Figure 4.3.4.3:** Graphical representation of comparative statistics of the average player Leg Length of Karnataka and Tamilnadu State University teams




The above-mentioned table and figure no. 4.3.4.3 gives the statistical analysis of the average player Arm Length of Karnataka and Tamilnadu teams. The 't' test values show that the *p* value is 0.024<0.05, showing No Significant difference in the arm length of the Volleyball players.

Among the Karnataka and Tamilnadu State Universities, the Minimum and Maximum Leg length falls in same objectivity of values. It is clearly noted that both the State Volleyball players have very good physical prerequisite under consideration. This might be the reason for numerous players to represent the National and participate in International tournaments in the game of Volleyball.

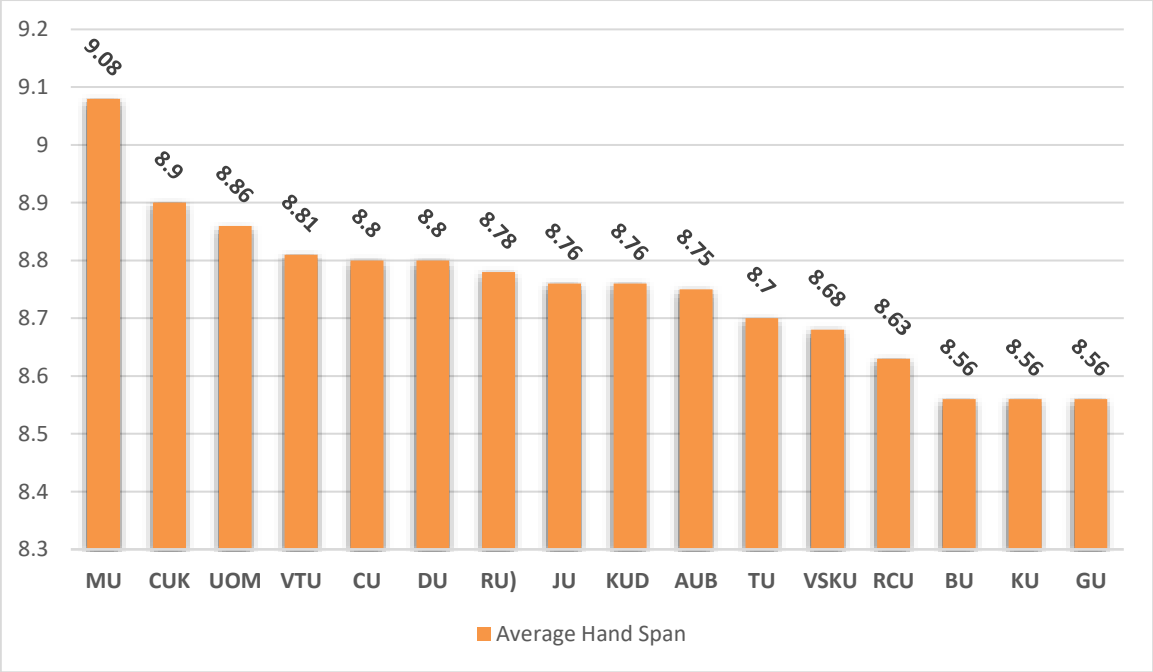
**Hand Span of Volleyball Players**

**Table 4.3.5.1:** Average Hand Span of players of different Universities of Karnataka

| Criteria | Teams | Average Length (Cm) |
|---|---|---|
| Player Hand span | Mangalore University (MU) | **9.08** |
| | Central University of Karnataka (CUK) | **8.90** |
| | University of Mysore (UOM) | **8.86** |
| | Visvesvaraya Technological University (VTU) | **8.81** |
| | Christ University (CU) | **8.80** |
| | Davanagere University (DU) | **8.80** |
| | Reva University (RU) | **8.78** |
| | Jain University (JU) | **8.76** |
| | Karnataka University (KUD) | **8.76** |
| | Agricultural Science Bangalore (AUB) | **8.75** |
| | Tumkur University (TU) | **8.70** |
| | Vijayanagara Shri Krishnadevaraya University (VSKU) | **8.68** |
| | Rani Chennamma University (RCU) | **8.63** |
| | Bangalore University (BU) | **8.56** |

| | | |
|---|---|---|
| | Kuvempu University (KU) | **8.56** |
| | Gulbarga University (GU) | **8.56** |

**Figure 4.3.5.1:** Graphical representation of average Hand Span of players of different Universities of Karnataka



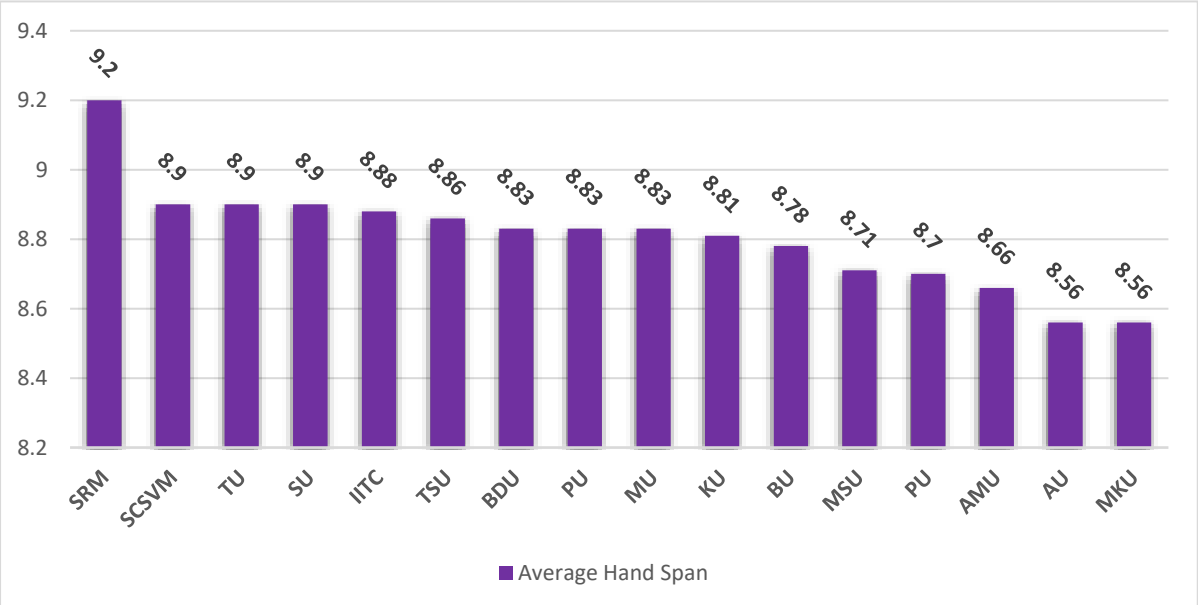

As per the table and figure no. 4.3.5.1 mentioned above, the players of Mangalore University are considered to have the highest score of Hand Span of about 9.08 cm among the different teams of Karnataka. Three teams namely; Bengaluru University, Kuvempu University and Gulbarga University show the same score of average Hand Span being 8.56 cm.

**Table 4.3.5.2:** Average Hand Span of players of different Universities of Tamilnadu

| **Criteria** | **Teams** | **Average Length (Cm)** |
|---|---|---|
| | Sri Ramaswamy Memorial Institute of Science and Technology (SRM) | **9.20** |
| | SCSVM University (SCSVM) | **8.90** |

| | | |
|---|---|---|
| **Player Hand Span** | Tiruvellur University (TU) | **8.90** |
| | Sathyabhama University (SU) | **8.90** |
| | Indian Institute of Technology (IITC) | **8.88** |
| | Tamilnadu Sports University (TSU) | **8.86** |
| | Bharathidasan University (BDU) | **8.83** |
| | Periyar University (PU) | **8.83** |
| | Madras University (MU) | **8.83** |
| | Karunya University (KU) | **8.81** |
| | Bharathiyar University (BU) | **8.78** |
| | Manonmaniam Sundaranar University (MSU) | **8.71** |
| | Puducherry University (PU) | **8.70** |
| | Annamalai University (AMU) | **8.66** |
| | Alagappa University (AU) | **8.56** |
| | Madurai Kamaraj University (MKU) | **8.56** |

**Figure 4.3.5.2:** Graphical representation of average Hand Span of players of different Universities of Tamilnadu

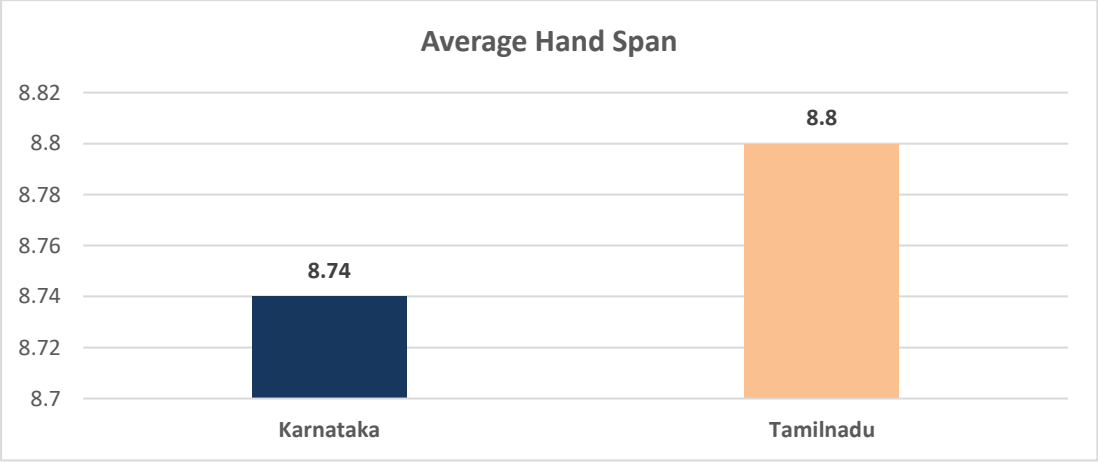


As per the table and figure no. 4.3.5.2, the average Hand Span of different teams of Tamilnadu indicates that the team of SRM University had the highest hand span of 9.2 cm among its players. Whereas, the players from Alagappa and Madurai Kamraj University had the lowest hand span score of 8.56 cm, among the team players of Tamilnadu.

**Table 4.3.5.3:** Comparative statistics of the average player Hand Span of Karnataka and Tamilnadu State University teams

| Criteria | State | No. of teams | Minimum | Maximum | Mean | Std. Error | Std. Deviation | t value | *p* value | Significance |
|---|---|---|---|---|---|---|---|---|---|---|
| **Player Hand Span (cm)** | Karnataka | 16 | 8.56 | 9.08 | 8.74 | 0.03 | 0.13 | -1.115 | 0.274 | **Not Significant** |
| | Tamilnadu | 16 | 8.56 | 9.20 | 8.80 | 0.03 | 0.15 | | | |

**Figure 4.3.5.3:** Graphical representation of comparative statistics of the average player Hand Span of Karnataka and Tamilnadu State University teams



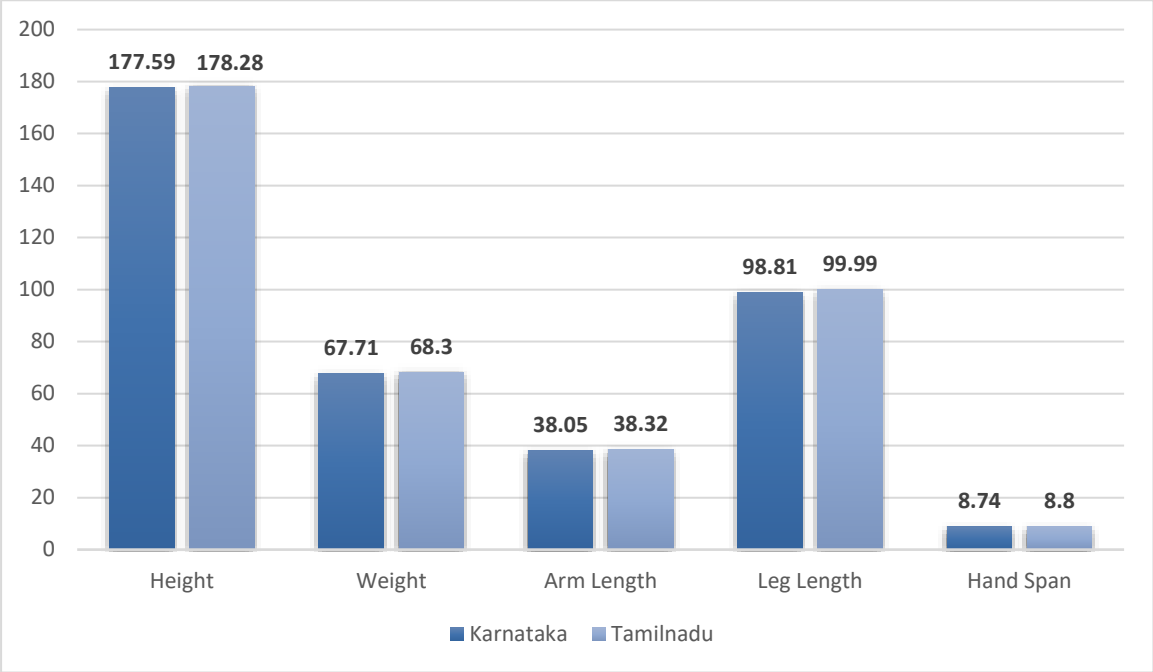

The above-mentioned table and figure no. 4.3.5.3 gives the statistical representation of the average player Hand Span of Karnataka and Tamilnadu teams. The 't' test values show that the *p* value is 0.274>0.05, showing no statistical significance. The minimum value of both the state Volleyball players was found to be

similar, although the Maximum Hand Span of Karnataka and Tamilnadu state University players indicated a variation of 0.12 cm. No significant difference as per the performance was observed between the state players regarding the Hand Span values. Therefore, it clearly indicates that, the professional players are decided and selected on the basis of possessing proper physical prerequisites required to become a Volleyball player.

**Table 4.3.6:** Descriptive statistics of the Anthropometric studies on teams of Karnataka and Tamilnadu states

| Criteria | State | No. of teams | Minimum | Maximum | Mean | Std. Error | Std. Deviation | t value | *p* value | Significance |
|---|---|---|---|---|---|---|---|---|---|---|
| **Player Height (cm)** | Karnataka | 16 | 174.33 | 183.08 | 177.59 | 0.51 | 2.05 | -0.932 | 0.359 | **Not Significant** |
| | Tamil Nadu | 16 | 175.50 | 183.41 | 178.26 | 0.50 | 2.02 | | | |
| **Player Weight (kg)** | Karnataka | 16 | 65.50 | 70.58 | 67.71 | 0.35 | 1.42 | -1.071 | 0.293 | **Not Significant** |
| | Tamil Nadu | 16 | 65.33 | 71.25 | 68.30 | 0.42 | 1.70 | | | |
| **Player Arm Length (cm)** | Karnataka | 16 | 37.45 | 39.45 | 38.05 | 0.13 | 0.52 | -1.379 | 0.178 | **Not Significant** |
| | Tamil Nadu | 16 | 37.33 | 39.45 | 38.32 | 0.15 | 0.60 | | | |
| **Player Leg Length (cm)** | Karnataka | 16 | 97.45 | 103.00 | 98.81 | 0.33 | 1.33 | -2.370 | 0.024 | **Significant** |
| | Tamil Nadu | 16 | 97.45 | 103.00 | 99.99 | 0.37 | 1.48 | | | |
| **Player Hand Span (cm)** | Karnataka | 16 | 8.56 | 9.08 | 8.74 | 0.03 | 0.13 | -1.115 | 0.274 | **Not Significant** |
| | Tamil Nadu | 16 | 8.56 | 9.20 | 8.80 | 0.03 | 0.15 | | | |

**Figure 4.3.6:** Graphical representation of comparison of averages of various Anthropometric measurements of Karnataka and Tamilnadu teams




As per the results acquired through the analysis of the given data, all the Anthropometric parameters were slightly higher in the Tamilnadu teams. This might contribute synergistically in boosting the player performance along with controlled Emotional Intelligence and Anxiety levels during matches. Although, none of them were statistically Significant. Researcher opinions that exactly following of the statistical measures of physical pre-requisites of a Volleyball player from both States were having objectivity in the data concerned. It clearly shows that, the result of both the State teams are excellent and the players are performing in their top forms.

# CHAPTER V

# SUMMARY, CONCLUSION AND RECOMMENDATIONS

## 5.1 Summary

### Emotional Intelligence

To measure the degree of Emotional Intelligence among the players, a standardized questionnaire of the Sports Emotional Intelligence Test (SEIT) was used. The questionnaire was distributed among the players who were requested to fill it up before the onset of the match. The mean emotional intelligence of teams from Karnataka and Tamilnadu was not significantly different, although the mean value of Tamilnadu is slightly higher than that of Karnataka. The mean value of both states lies within the range of average emotional intelligence levels as per the standard score range of the questionnaire. Here, the top-performing teams from both states had good emotional intelligence levels as per the standard score range of the questionnaire. These further reveals that the team with a greater number of national level players had a better emotional intelligence level, owing to the direct proportionality between emotional intelligence to that of player performance.

### Anxiety

For the evaluation of Anxiety, Sports Competitive Anxiety Test (SCAT Rainer Martens, 1990) was used. The questionnaire was given to the players before the match to assess their pre-match Anxiety levels.

### Anthropometric Studies

The study considered five different variables; Height, Weight, Arm Length, Leg Length and Hand Span of the players, which are very important traits to be considered for Volleyball players. All the criteria, the Tamilnadu had slightly higher values than the Karnataka teams, but none of them were statistically significant. However, the top performing teams from both the states had better and optimal values in all the traits considered, showing that these have an effect on the performance of the teams

## 5.2 Findings of the study

### Emotional Intelligence

Based on the study as per the questionnaire it was seen that pre-competition Emotional Intelligence among Karnataka teams, the highest scoring team was Mangalore University with a score of 277.08 and the lowest VTU with a value of 180.42. In comparison among the Tamilnadu team, SRM ranked the highest with 234.58 and IITC ranked lowest with 178.75. In relation to both the states regarding the mean value of Emotional Intelligence, Tamilnadu had a score of 200.58 whereas Karnataka state team had a mean value of 198.59.

### Anxiety

Among the teams from Karnataka, Reva University has the highest Anxiety score of 22.15 and Mangalore University has the lowest score of 17.58 with mean Anxiety score of all the teams from Karnataka being 20.068. In case of Tamilnadu state, IIT, Chennai had the highest Anxiety score of 22.38, lowest score of 14.11 was that of SRM and mean Anxiety score of all the teams from Tamilnadu is 18.45. The t-test performed between the Karnataka and Tamilnadu had *p* value >0.05 and hence the difference in Anxiety score is not statistically significant. Also, according to SCAT reference value, Anxiety score between 17 and 24 is considered as average Anxiety level. As per these values, the scores of both Karnataka and Tamilnadu teams were well within the range of average anxiety level. Taking into consideration the top performing teams from Karnataka and Tamilnadu states, Mangalore University and SRM teams respectively, the results are contrasting to that of the average Anxiety levels of the states on the whole. The difference in average Anxiety levels of the two teams - Mangalore University and SRM is statistically Significant (*p* value >0.05). Based on the match results of the South-Zone Inter-University tournament, where SRM stood as the winner, we can say that lower the pre-match Anxiety, better is the performance of the team. This shows that the pre-match Anxiety level of the player is inversely proportional to the performance of the team and has Significant impact on the overall outcome of the game.

**Anthropometric study**

The Height, Weight, Arm Length, Leg length and Hand Span of the players were taken for the purpose of Anthropometric readings. The finding in the Anthropometric variables show that there was No Significant correlation between the players of both Karnataka and Tamilnadu state in each of the variables of Height, Weight, Arm Length, Leg Length and Hand Span of the players.

## 5.3 Findings of the Hypotheses

$H_1$: It has been hypothesized that there is a **Significant** difference in the Emotional Intelligence between Karnataka and Tamilnadu University players.

Since, **No Significant difference** is observed in the Emotional Intelligence between Karnataka and Tamilnadu University players, the null hypothesis is rejected and the research hypothesis is accepted.

$H_2$: It has been hypothesized that there is a **Significant** difference in the Anxiety level between Karnataka and Tamilnadu University players.

Since, a **Significant** difference is observed in the Anxiety level between Karnataka and Tamilnadu University players, the null hypothesis is accepted.

$H_3$: It has been hypothesized that there is a **Significant** difference in the Anthropometric measurement between Karnataka and Tamilnadu University players of all the variables of Height, Weight, Arm Length, Leg Length and Hand Span in concern.

Since, **No Significant difference** is observed in all variables of the Anthropometric measurements between Karnataka and Tamilnadu University players, the null hypothesis is rejected and the research hypothesis is accepted for all the five variables of Height, Weight, Arm Length, Leg Length and Hand Span in concern.

$H_4$: It has been hypothesized that there is a **Significant** correlation between Emotional Intelligence and Anxiety level.

As an outcome, a Significant negative correlation was observed between Emotional Intelligence and Anxiety. Hence the null hypothesis is accepted.

$H_5$: It has been hypothesized that Anxiety has a **Significant** impact on player performance.

Since, higher number of teams belonging to Tamilnadu State having lower Anxiety levels have qualified to the quarter-finals, this hypothesis is accepted.

$H_6$: It has been hypothesized that Emotional Intelligence has a **Significant** impact on player performance.

Since, higher number of teams belonging to Tamilnadu State having slightly higher levels of Emotional Intelligence have qualified to the quarter-finals, this hypothesis is accepted.

## 5.4 Conclusion

This study mainly focused on the impact of psychological factors, namely- Emotional Intelligence and Anxiety in addition to Anthropometric factors on player performance among Karnataka and Tamilnadu State University players. Among the 32 teams taken into consideration, the players of Karnataka and Tamilnadu did not show Significant difference when it came to the aspect of Emotional Intelligence. Apart from Emotional Intelligence, Anxiety between the two teams showed results greater than the Significance value taken into account. The consequence of the above analysis being no association between Anxiety and Emotional Intelligence with respect to player performance of the two states. However, there lies influence of these two factors when the two top performing teams were considered. Players of the teams with excellent Emotional Intelligence and low anxiety displayed sublime performance in the game. Despite the fact that the teams of Tamilnadu displayed data slightly higher than players of Karnataka in all the variables taken into consideration, there was no statistically significant difference between the teams of the two states in the conducted Anthropometric study. All this suggests that there is no major role of Anthropometric measurements when it comes to the comparison between the Volleyball players of the two states.

On the basis of the study, the following conclusions were drawn

1. The result of the study in pre-competition Emotional Intelligence, it was seen that there is No Significant difference among the Volleyball players of Karnataka and Tamilnadu states.
2. The result of the study in pre-competition Anxiety level with respect to practice hours showed No Significant difference among the players of Karnataka and Tamilnadu states.
3. The result of the study in Anthropometric measurements of the Height, Weight, Leg Length, Arm Length and Hand Span of the players of Karnataka and Tamilnadu showed No Significant difference for the Volleyball players of both States.

**5.5 Recommendations**

This study has considered only the top qualifying teams of the states of Karnataka and Tamilnadu. Though there is No Significant difference in most of the parameters considered to compare. Mean value of Anxiety and Emotional Intelligence is average among the players of both the states. Here are some suggestions to improve the Anxiety levels and Emotional Intelligence among players:

1. Introducing some personality development activities in the training
   - Which can improve self-awareness
   - Social awareness,
   - Self-management (especially Emotional management) and relationship management among the players.

   This will help in improving the Emotional Intelligence levels of the players and will definitely have a positive impact on the performance of the players
2. Organizing more matches at different levels to increase the participation of players in tournaments, which would in turn give them the on-court experience of handling the pressure and putting up better performances with elevated Emotional Intelligence and reduced Level of Anxiety.
3. Increased amount of emphasis was needed on the fitness regime and nutrition of the players as these two are areas of prime importance where focus is expected to get better performances from the players in the long

run. The above-mentioned factors play a vital role in determining the recovery of players in case of any kind of injuries.

4. The same study can be conduct for University players of both the state for women.
5. The same study can be conduct for University players of All India Inter-University players.

**References:**


1. Sandeep U, Kumar U. A comparative study on physical fitness variables of Kho-Kho and Kabaddi players of high school boys of Bangalore South. International Journal of Physiology, Nutrition, and Physical Education. 2016;1(2):187-93.
2. Birwatkar VP. Emotional intelligence: The invisible phenomenon in sports. Eur. J. Sports Exerc. Sci. 2014;3(19):31-.
3. Sawyer KA. A qualitative study on the implementation of the FRIENDS anxiety management and mental health promotion program. Unpublished doctoral thesis, Trinity Western University. 2011 Dec.
4. Keshavamurthy, T. A Comparative Study on Anxiety Level among Karnataka and Tamilnadu State University Men Volleyball Players. 11, 1627–1629 (2022).
5. Kajbafnezhad H, Ahadi H, Heidarie AR, Askari P, Enayati M. Difference between team and individual sports with respect to psychological skills, overall emotional intelligence and athletic success motivation in Shiraz city athletes. Journal of Physical Education and Sport. 2011 Sep 1;11(3):249.
6. Bahrololoum H, Hassani A, Bandeli MR, Akbari A. The relationship between the emotional intelligence and mental skills in Iranian elite male Volleyball players (case study Semnan province). International Journal of Academic Research in Business and Social Sciences. 2012 Jul 1;2(7):123.
7. Navaneethan B, Soundara Rajan R. Effect of progressive muscle relaxation training on competitive anxiety of male inter-collegiate volleyball players. Shield: Research Journal of Physical Education & Sports Science. 2010 Jan 1(5).
8. Singh A, Gaurav V. A study of pre-competitive and post-competitive anxiety level of inter-collegiate Volleyball players. International Journal of Sports Science and Engineering. 2011;5(04):237-41.
9. Jaric S, Ugarkovic D, Kukolj M. Anthropometric, strength, power and flexibility variables in elite male athletes: basketball, handball, soccer and

Volleyball players. Journal of human movement studies. 2001 Jan 1;40(6):453-64.

10. Duncan MJ, Woodfield L, Al-Nakeeb Y. Anthropometric and physiological characteristics of junior elite Volleyball players. British journal of sports medicine. 2006 Jul 1;40(7):649-51.